EFFECTIVENESS OF CAPACITY BUILDING PROGRAMME REGARDING CARE OF PATIENT WITH INTRA AORTIC BALLOON PUMP (IABP) UPON THE KNOWLEDGE AND PRACTICE AMONG NURSES

By

D.NEELAVATHI

A DISSERTATION SUBMITTED TO THE TAMILNADU DR.M.G.R MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

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DECLARATION

I hereby declare that the present dissertation entitled "**Effectiveness of Capacity Building Program regarding Care of Patient with Intra Aortic Balloon Pump (IABP) upon the Level of Knowledge and Practice among Nurses"** is the outcome of the original research work undertaken and carried out by me under the guidance of **Dr. Latha Venkatesan M.Sc(N)., M.Phil(N)., Ph.D.(N)., MBA (HM)., Ph.D (HDFS).,** Principal cum Professor, Apollo College of Nursing, and **Mrs.Jaslina Gnanarani**., **M.Sc(N), M.Sc (Psychology).,** Reader of Medical Surgical Nursing Department, Apollo College of Nursing, Chennai. I also declare that the material of this has not found in any way, the basis for the award of any degree or diploma in this university or any other university.

D.NEELAVATHI

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SYNOPSIS

A Pre Experimental Study to assess the Effectiveness of Capacity building programme regarding care of patient with Intra Aortic Balloon Pump (IABP) upon the level of Knowledge and Practice among Nurses at Selected Hospitals, Chennai.

Objectives of the Study

1. To assess the level of knowledge and practice regarding care of patient with IABP in pretest and posttest.
2. To determine the effectiveness of capacity building program regarding care of patient with IABP by comparing the pre and posttest level of knowledge and practice among nurses.
3. To determine the level of acceptability of nurses regarding capacity building program on care of patient with IABP among nurses.
4. To determine the correlation between the scores of knowledge and practice regarding care of patients with IABP among nurses.
5. To find out the association between the level of knowledge regarding care of patient with IABP and the selected demographic variables of the nurses, in pretest and posttest.
6. To find out the association between the level of Practice regarding care of patient with IABP and the selected demographic variables of the nurses, in pretest and posttest.

The conceptual framework for the study was developed on the based on "**J.W. Kenny's open system model" (2002).** A pre experimental one group pretest and posttest design was adopted for the study. The present study was conducted at Apollo Hospital, Chennai. Sixty nurses who fulfilled the inclusion criteria were selected by purposive

sampling. The independent variables of the study was the capacity building programme regarding care of patient with IABP and dependent variables were knowledge and practice regarding care of patient with IABP.

An extensive review of literature and guidance by experts laid the foundation of development of demographic variable Proforma, structured knowledge questionnaire, practice observational checklist on IABP care and satisfaction rating scale on capacity building programme on IABP care. The validity was obtained from various experts and reliability was established. Pilot study data was done from 1st December, 2017 to 22st December, 2017. The main study was done Apollo specialty data collection was done from 1st January, 2018 to 21st January, 2018.

The investigator used the demographic variable proforma, structured knowledge questionnaire to assess the level of knowledge regarding care of patient with IABP and observation checklist to assess the level of practice regarding care of patient with IABP. The data collection tools were validated and reliability was established. The main data collection was done after determining the feasibility and practicability through a pilot study.

After obtaining the institutional ethical clearance, setting permission and written consent from the study participants, the baseline data of demographic variables, pretest level of knowledge and practice regarding care of patient with IABP were collected. Then capacity building programme on care of patient with IABP was administered for the nurses working in cardiac units. It was conducted in 4 sessions (2 hours/session) for 2 days. The Capacity Building Programme regarding the care of patient with IABP was provided using power point presentation on concepts (introduction, definition, purposes, indications, contraindications, steps of IABP care before, during and after insertion of

IABP) and demonstration regarding care of patient with IABP Then the posttest level of knowledge and practice was conducted after 7 days of the Capacity Building Programme care of patient with IABP. The collected data was tabulated and analyzed by using descriptive statistics such as mean and standard deviation and inferential statistics such as t test, chi square test and Karl Pearson's coefficient correlation test.

Major Findings of the Study were

- Majority of the nurses were aged between of 21 to 25 years (80%), females (73.3%) with an educational level of B.Sc. nursing (70%), And more than half of them had up to two years experience in ICU and (53.4%) and most of them had previous experience in the care of patients with IABP (76.7%).
- Most of the nurses had moderately adequate knowledge (80%) and 20% of them had inadequate knowledge regarding IABP care in the pretest, while majority of staff nurses gained moderately adequate knowledge (73.33%) and 26.67 % of them had gained adequate knowledge in the posttest.
- Majority of the Nurses had average level of practice (66.67%) and 23.33% of them had poor practice regarding IABP care in the pretest. In the posttest majority of the nurses had average level practice (78.33%), and 21.67% of them had good practice after the capacity building programme on IABP care.
- There was a significant difference between the pretest practice scores (M = 17, SD = 3.99) and posttest practice scores (M =28.36, SD =3.8) regarding IABP care among nurses with a "t" value of 20.06, significant at $p < 0.001$. Hence the null hypothesis $\mathbf{H_0 1}$ stating that "There will be no significant difference between the pretest and posttest level of knowledge and practice regarding IABP care among Nurses" was rejected.

- There was a significant difference between pretest knowledge score (M = 16.48, SD = 2.1) and posttest knowledge score (M =22.95, SD = 2.7) regarding IABP care among nurses with t-value of 13.6 which was significant at $p < 0.001$ level. Hence the null hypothesis **$H_0$1** stating that, "There will be no significant difference between the pretest and posttest level of knowledge and practice regarding IABP care among Nurses" was rejected.
- Majority of the Nurses found the capacity building programme highly acceptable with regard to the approach of the researcher (95%), Administration of capacity building programme (90%) and about its effectiveness of (90%).
- There was a positive correlation between the posttest knowledge and practice of ($r=0.41$) nurses significant at $p<0.001$ level. Hence the null hypothesis **$H_0$2** stating that, "There is no significant correlation between the posttest level of knowledge and practice of nurses regarding IABP", was rejected.
- There was a significant association between pretest level of knowledge regarding IABP care among nurses and gender ($x^2 = 3.94$) at $p<0.05$ level and there was no significant association between pretest and posttest level of knowledge and other demographic variables of Nurses such as age, educational level, ICU experience and previous experience of IABP patient care.
- Hence the null hypothesis **$H_0$3** stating that, "There will be no significant association between the selected demographic variables and the pretest and posttest level of knowledge of nurses regarding IABP care nurses" was retained with regard to age, educational level, ICU experience and previous experience of IABP patient care except with regard to gender .
- There was no significant association between pretest and posttest level of practice regarding IABP care of nurses and their demographic variables namely age,

gender, educational level, years of ICU experience and previous experience. Hence the null hypothesis **$H_0$4** stating that, "There will be no significant association between the selected demographic variables of nurses and their level of practice regarding IABP care" was retained.

Recommendations

The researcher recommends the following studies

- The same study may be conducted on larger samples for better generalization.
- The similar study can be conducted for different samples.
- Experimental studies to assess effectiveness of different teaching strategies on IABP may be conducted.

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CHAPTER I

INTRODUCTION

Background of the study

"If I see, I forget, If I hear, I remember, If I do, I Know"

- Confucius Quotes

The coronary artery disease and myocardial infarction occurs when myocardial tissues are abruptly and severely deprived of oxygen. Ischemia can lead to necrosis of myocardial tissues if blood flow is not restored. Infarction does not occur instantly but evolves over several hours. Coronary artery diseases is a narrowing or obstruction of one or more coronary arteries as a result atherosclerosis, which is an accumulation of lipid containing plaque in the arteries. Its causes decreased myocardial tissues perfusion. (World Health Organization, 2013)

The Intra-aortic balloon pump (IABP) is a mechanical device that increases myocardial oxygen perfusion while at the same time increasing cardiac output. Increasing cardiac output increases coronary artery blood flow and therefore myocardial oxygen delivery. It consists of a cylindrical polyethylene balloon that sits in the aorta, approximately 2 centimetres (0.79 inches) from the left subclavian artery and counter pulsates. That is, it actively deflates in systole, increasing forward blood flow by reducing after load. It actively inflates in diastole, increasing blood flow to the coronary arteries. These actions combine to decrease myocardial oxygen demand and increases myocardial oxygen supply.(Kocogullari et al ,2008)

Intra-aortic balloon pump (IABP) is the most widely used temporary mechanical circulatory assist device for supporting failing circulation. Today more than 1,60,000

patients worldwide receive this therapy annually. The primary purpose of IABP is the support of the failing heart by simultaneously increasing myocardial oxygen supply and decreasing myocardial oxygen demand. IABP catheter consists of a single, sausage – shaped polyurethane balloon that is wrapped around the distal end of a vascular catheter and positioned in the descending thoracic aorta just distal to the take off the left subclavian artery and is attached to an external drive console which inflates and deflates the IAB in synchrony with cardiac contraction. (Wan et .al ,2016)

The intraaortic balloon pump is a device widely used in patients whose cardiac function is compromised or potential compromised. IABP requires the positioning of an intraaortic balloon catheter in the descending thoracic aorta, immediately inferior to the origin of the left subclavian artery and superior to the renal arteries (Onorati el al .2009)).

The catheter is then attached to an external pump which will inflate and deflate it in synchrony with the cardiac contractions. Balloon inflation occurs at the onset of diastole when blood ceases to eject from the heart. Inflation of the catheter results in displacement of blood volume within the descending thoracic aorta. Proximal blood is returned to the heart to oxygenate the coronary arteries while blood in the distal descending aorta is circulated around the body. Catheter deflation is timed to occur immediately before the onset of systole and the heart commences ejection. This action ensures that after load is reduced and blood is ejected into a partially empty aorta. Cardiac workload and the consequent demand for oxygen can thus be reduced. This reduction in afterload also for improves cardiac output and increases systemic perfusion (Lewis, 2016).

A computer controlled mechanism inflates the balloon with helium from a cylinder during diastole, usually linked to either an electro cardiogram (ECG) or a

pressure transducer at the distal tip of the catheter some IABP, such as the data scope system 98XT, allow asynchronous counter pulsation at a set rate, though this setting is rarely used. Helium is used because its low viscosity allows it to travel quickly through the long connective tubes, and has a lower risk than air of causing an embolism should the balloon rupture (American Heart Association, 2016).

The study was conducted by Glasius,P (2012) The IABP device was pioneered at Grace Sinai hospital in Detroit during the early 1960s by Bergman in 2016 at New York Presbyterian hospital. The first clinical implant was performed at Maimonides medical Centre, Brooklyn, New York in Oct 1967. The patient a 48 year old woman was in cardiogenic shock and unresponsive to traditional therapy. An IABP was inserted by a cut down on the left femoral artery, pumping was performed for approximately 6 hours. Shock was reversed and the patient was discharged.

Need for the Study

Intra-aortic balloon pump, remains the most widely used circulatory assist device in critically ill patients with cardiac disease. The national center of Health Statistics estimated that IABP was used in 42,000 patients in the India in 2002. Advance in technology. Including percutaneous insertion, smaller diameter catheters, sheaths insertion techniques, and enhanced automation, have permitted the use of counter pulsation in a variety of setting, with greater efficacy and safety .

Cardiogenic shock is an uncommon but potentially fatal complication of acute myocardial infarction (MI) and must be managed carefully to maximize recovery and patient prognosis. The current guidelines aim to manage this by earliest possible revascularization (Journal of the American college of cardiology,2016)

According to the American Heart Association (2016), Coronary heart disease was the cause of 1 in every 6 death in the United States in 2007. It estimates that 1. 2 million American will have an MI (myocardial infarction) annually and about one fourth of these will die in an emergency department or before reaching a hospital Also 1 in 9 death certificates (277 193) in the united states mentioned heart failure, and more than 2200 American die of coronary vascular diseases (CVD) each day. The average life expectancy of American is 77. 9 years, but nearly 33 % of death occurs due to CVD before the age of 75 years.

A retrospective study was conducted in a teaching hospital, on the routine use of an IABP in high risk patients undergoing cardiac surgery to prevent or treat low cardiac output syndrome and to reduce preoperative mortality. The result shows that the use of a preoperative IABP was 0.7 % at the beginning of the observation (Journal of cardiac surgery,2016).

Improvement in diagnostic and treatment modalities for heart diseases has lead to a steady increase in the number of patient surviving after an acute cardiac event with some rehabilitation measures. The ultimate goal of cardiac rehabilitation is to restore the patients to an optimal level of recovery and all these activities help to prevent the recurrence of a cardiac event after CABG (New England journal of medicine,2011).

IABP is increased myocardial oxygen supply and increased cardiac output, and counter pulsation of the heart. It is estimated that about 103,000 people in the India have a MI each year .So IABP needed for the treatment of Cardiac diseases. Thus nurses need to know about the IABP and care of patients on IABP (Lucas,W.J.,2016). The improvement in knowledge also helps to prevent the complications of IABP and lead to better patient outcomes. Therefore this study was conducted to assess the effectiveness of a capacity

building programme regarding care of patient with Intra-Aortic Balloon Pump (IABP) upon the level of knowledge and practice among nurses at selected hospitals, Chennai.

Statement of the Problem

A Pre Experimental Study to Assess the Effectiveness of a Capacity Building Programme regarding Care of Patient with Intra-Aortic Balloon Pump (IABP) upon the Level of Knowledge and Practice among Nurses at Selected Hospitals, Chennai.

Objectives of the Study

1. To assess the level of knowledge and practice regarding care of patient with IABP in pretest and posttest .
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6. To find out the association between the level of Practice regarding care of patient with IABP and the selected demographic variables of the nurses, in pretest and posttest

Operational Definitions and Conceptual Definitions

Effectiveness

It is defined as the degree to which something is successful in producing a desired result or success (World Health Organization , 2013).

Operational definition

In this study effectiveness refers to the degree to which objectives are achieved in terms of improvement in the level of knowledge and skill after providing capacity building programme regarding IABP care as measured by comparing the pre test and post test scores.

Capacity Building Program

Conceptual definition

It is a planned development of (increase in) knowledge, output rate, management, skill of an organization through training, for a selected group of people (Business Dictionary, 2018)

Operational definition

In this study, it refers to a structured educational programme provided for the selected samples of nurses regarding IABP care which includes concepts of IABP care, care provided before, during and after insertion of IABP through power point presentation, demonstration and videos conducted 3 days (4 hours/day) for each batch of nurses.

Intra-Aortic Balloon Pump (IABP)

It's a mechanical device which is used for patients with LV dysfunction, severe hypotension in cardiac units to increase myocardial oxygen perfusion and thereby

increasing cardiac output. Increasing the cardiac output, increases the coronary blood flow and therefore myocardial oxygen delivery (American Heart Association, 2016).

Operational definition

It's a mechanical device which is used for patients with LV dysfunction, severe hypotension to support patients in cardiac units such as AICCU, CT ICU and Cath Lab.

Knowledge

It refers to the facts, information and skills acquired through experience or education. It is also a theoretical or practical understanding of a subject (World Health Organization, 2013).

Operational definition

In this study it refers to the awareness and understanding of nurses regarding the various aspects of care of patients with intra-aortic balloon pump (IABP) as measured by structured questionnaire developed by the investigator.

Practice

It is the actual application or use of an idea, belief, or method as opposed to theories relating to it (World Health Organization, 2013).

Operational definition

In this study, it refers to degree of ability of the nurses to perform the steps in the care of patients with IABP as measured by structured practice observational checklist developed by investigator.

Nurses

In this study it refers to nurses who have obtained B.Sc. (N)/ G.N.M

Operational definition

In this study, it refers to those qualified and registered nurses working in the cardiac units of Apollo Hospitals, Chennai.

Assumptions

- Many patient on IABP, can develop complications and nurses can play a vital role in preventing the complications.
- Nurses must have adequate knowledge regarding IABP care
- Protocol guides the Nurses to perform standardized care and helps to prevent errors.
- Knowledge level influences practice, to promote quality outcomes and prevent complications after insertion
- Teaching is a vital element that impacts the knowledge level and practice
- Adequate knowledge is essential for the nurses to care for patients with IABP care.

Null hypotheses

Ho1: There will be no significant difference between pretest and posttest scores of knowledge and practice regarding care of patient with IABP among nurses.

Ho2: There will be no significant correlation between the scores of knowledge and practice regarding care of patient with IABP among nurses

Ho3: There will be no significant association between the level of knowledge, regarding care of patient with IABP and selected demographic variables.

Ho4: There will be no significant association between the level of practice of nurses, regarding care of patient with IABP and selected demographic variables.

Delimitations

This study was limited to

- nurses who were working in cardiac units of the selected Hospital, Chennai.
- data collection period for 6 weeks only.
- nurses who are present during the time of data collection.

Conceptual Framework of the Study

A conceptual framework is a group of concepts and a set of propositions that spell out the relationship between them. Their overall purpose is to make scientific findings meaningful and generalized. A Conceptual framework deals with the interrelated concepts of abstraction that are assembled together in some rational scheme by virtue of their relevance to a common theme. It is a device that helps to stimulate the research and the extension of knowledge by providing both direction and impetus. A framework is the spring for scientific advancement. (Polit & Beck, 2016).

A conceptual framework for a particular study is the abstract, logical structure that enables the researcher to link the findings to nursing body of knowledge. It is developed from the existing theory and helps in identifying and defining the concept of interests and proposing the relationship among them. The model gives a direction for planning research design, data collection and interpretation of findings.

The study is based upon J.W. Kenny's open system model (2002). The system theory is concerned with changes due to interrelation between various factors in a situation. All living systems are open, in which there is continual exchange of matter, energy and information. Open system have various degrees of input and gives back output in form of matter, energy and information.

The concepts of Kenny's open system model (2002) are input, throughput, output and feedback. Input refers to matters and information, which are continuously processed through the system and released as outputs. After processing the input, the system returns output (matter and information) to the environment in an altered sate; affecting the environment for information to guide its operation. This feedback information of environment responses to the systems output is used by the system in correlation with the environment. The Feedback may be possible, negative or neutral. In this study, the concepts have been modified as follows.

The present study aims at describing the effectiveness of knowledge of nursing personnel regarding care of patients with intra-aortic balloon pump (IABP). Here Von Bertalanffy's general systems of theory of learning is used. A system is a set of interrelated parts that came together to form a whole. It has four major aspects.

- Input
- Throughput
- Output
- Feedback

Input

Input can be matter, energy and information from the environment. In the present study the input are the background characteristics related to the level of knowledge and practice among nurses, the preparation of capacity building programme regarding the care of patients with IABP among nurses.

Throughput

Throughput is the processing of structured capacity building programme which includes power point presentation, demonstration and videos, regarding information and steps and guidelines about care patient with IABP.

Output

The expected outcome was obtained by assessing the posttest level of knowledge and practice regarding care of patient with intra-aortic balloon pump (IABP) using structured knowledge questionnaire and practice observation checklist. The output was ascertained by comparing pretest and posttest level of knowledge and practice among nurses.

Feedback

Differences in pretest and posttest scores were observed from the knowledge practice scores of the samples. The level of acceptability feedback was obtained by assessing the regarding Capacity building programme on care of patient with IABP among nurses.

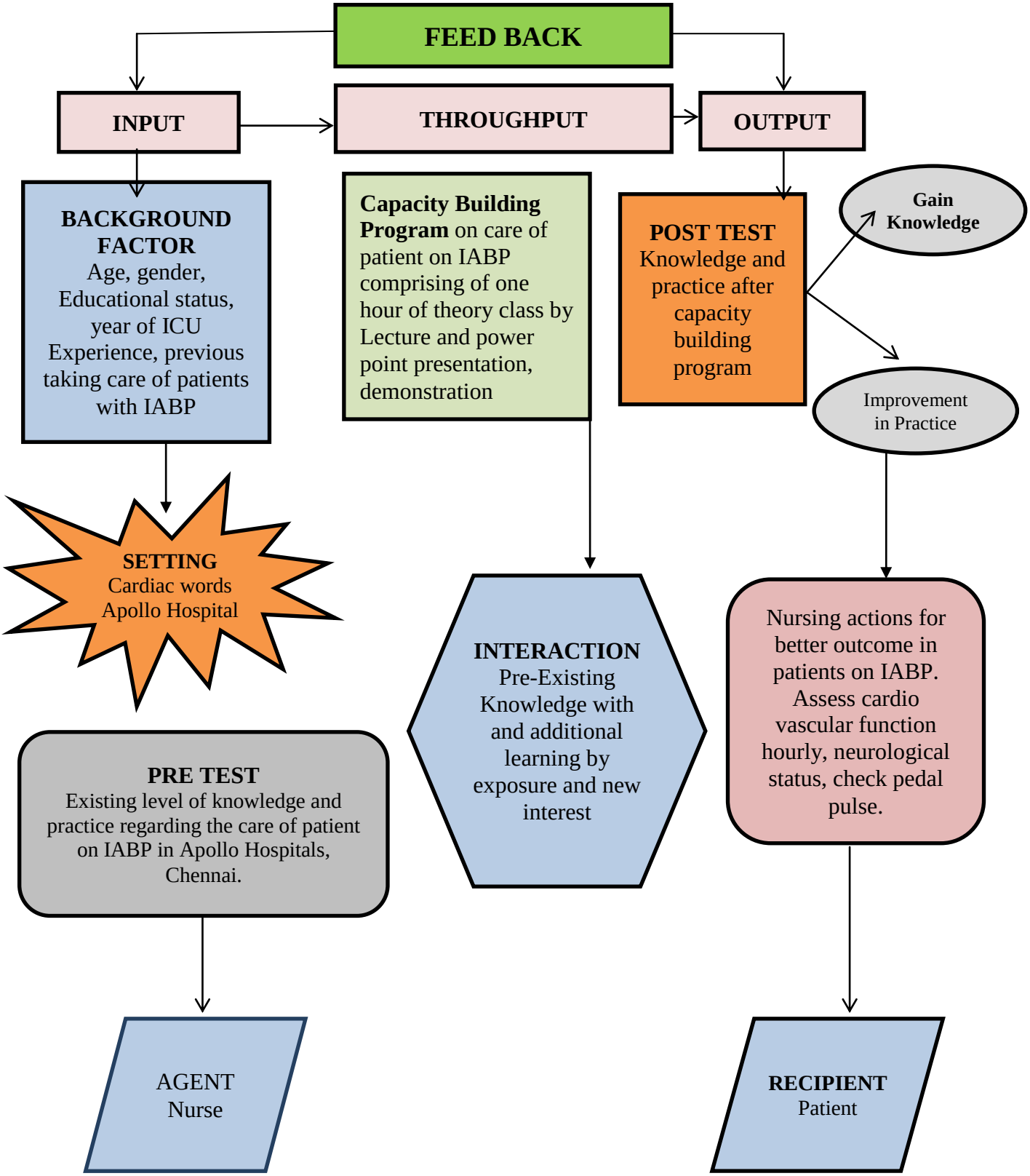

Figure 1: Modified Conceptual Framework J.W. Kenny's Open System Model (2002)

Projected outcome

The projected outcomes may be the increase or decrease in the level of knowledge and practice on IABP care among nurses. It is useful for the Nurses to gain adequate knowledge and practice on IABP care. In turn, it will improve quality of IABP care. The intervention is affordable and easy to administer.

Summary

This chapter dealt with the background of the study, need for the study, statement of the problem, objectives of the study, operational definitions, assumptions, null hypothesis, delimitations and conceptual framework.

Organization of the Report

Further aspects of the study are presented in the following chapters.

Chapter II	Review of literature.
Chapter III	Research methodology which includes research approach, research design, setting, population, sample, sampling technique, tools used in the study, data collection Procedure and plan for data analysis.
Chapter IV	Analysis and Interpretation of data.
Chapter V	Discussion.
Chapter VI	Summary, conclusion, implications, recommendations and limitations.

CHAPTER II

REVIEW OF LITERATURE

A review of literature is the critical summary of research on a topic of interest, often prepared to put a research problem in context. (Polit & Beck, 2016)

In this chapter, an attempt has been made to bring out the available literature which helps in projecting the widened perspective of this study. This chapter deals with a review of published and unpublished research studies and from related material for the present study. The review helped the investigator in building the foundations of the study. The collected reviews were organized under the following headings.

Review of literature is the reading and organizing of previously written material relevant to the specific problem to the investigated, framework and methods appropriate to perform the study.

Review of literature related to this study has been divided into the following categories

1. Studies related to IABP usage in Coronary Artery Bypass Graft, complications, and impact of IABP in cardiac patients.
2. Studies related to the knowledge and practice of Nurses regarding IABP.

1. Studies related to IABP Usage in Coronary Artery Bypass Graft

Wan et .al, (2016) conducted randomized trials enrolling 2155 patients and found that stable in patients with acute myocardial infarction with or without cardiogenic shock. But in high-risk CABG patients, IABP was associated with reduced mortality and concluded that patients undergoing high-risk coronary revascularization, IABP did not

significantly decrease mortality. But high-risk CABG patients may be benefit from IABP. Rigorous criteria should be applied to the use of IABPs.

Kocogullari et. al, (2008) conducted a study to determine the isolated role of sheaths in the development of vascular complications following IABP catheterization. They evaluated around 81 patients who had received an intra-aortic balloon pump (IABP) for hemodynamic stability between January 2003 and October 2007 following Cardio vascular surgery.

Kim et. al, (2011) conducted a study about IABP therapy facilitation of posterior vessel off pump coronary artery bypass grafting in high risk patients. There were no differences in ventilator support time, length of stay in the intensive care unit hospital stay and morbidity between the two groups. The results shows that intra aortic balloon pump (IABP) therapy was more effective in posterior vessel off pump coronary artery bypass grafting in high risk patients.

Onorati el. al, (2009), a study was conducted to assess the intra operative bypass graft flow in intra-aortic balloon pump (IABP) supported patients in a cardiac unit in Italy. In normal functioning grafts, the mean diastolic and mean blood flow improved significantly during 1: 1 IABP use when compared to complete intra-aortic balloon pump (IABP) cessation although mean and diastolic arterial pressure was significantly lower. In this analysis, use of IABP was associated with improved diastolic and mean blood flow in bypass graft. Arterial and sequential grafts were associated with greater improvements in blood flow and surplus graft flow. The study concluded that intra-aortic balloon pump improves the mean blood flow to the heart.

Qiu et. al, *(*2009) conducted a study about evaluation of pre-operative, intra-aortic balloon pump in coronary patients with severe left ventricular dysfunction undergoing off pump coronary artery bypass surgery between march 2000 and December 2008. They studied the insertion of pre-operative IABP in 115 (7. 4 %) and post-operative IABP in 106 (6.8 %) of the 1560 consecutive patients group A in pre-operative IABP therapy. There was no significant difference in the number of grafts used between the two groups. The statistically significant difference was in the hospital mortality and there was a significant reduction in postoperative low cardiac output , malignant arrhythmia, acute renal failure and length of stay in ICU in group A when compared with group B.

IABP complications

Elahi et. al, (2009), conducted a study about complication of intra-aortic balloon pump in a cohort of hospitalized patients. Of the total 104 patients included, with mean age 65 +/ - 11 years, 52% were men and among them 26 (25%) of them presented with vascular complications, more frequently ischemia (25%). Peripheral vascular disease was the risk factor more frequently related to complication. Nursing records showed that the use of catheter was recorded in 30 cases (29%). Peripheral vascular disease was the most common complication of intra-aortic balloon pump (IABP).

Serraino et. al, (2010) performed a study about insertion of IABP during coronary artery bypass graft. Among the 8,872 Coronary patients 2.1% received intra operative or post-operative IABP. Factors such as age greater than 70 years, moderate and poor left ventricular dysfunction, previous cardiac surgery, emergency operations, left main disease and recent myocardial infarction were the conditions that needed IABP insertion. The results shows that the clinical data can be used to identify high risk patient who may benefits from elective insertion of IABP during coronary artery bypass graft.

Unverzagt et. al, (2011) performed a retrospective cohort study by collecting detailed clinical and device data from all 150 consecutive patients who received IABP in their institution between 2004 and 2009. The purpose was to describe the temporary utilization, clinical outcomes and complication rates of IABP in this current age. Thrombocytopenia occurred in 50% fever, bleeding in 27%, and vascular embolic event in 1%. Those who developed fever had higher in hospital mortality. In this temporary cohort of IABP patients, complication rates of thrombocytopenia, fever and bleeding were relatively high as anti-platelet medications are involved.

Impact of IABP

Velazquez et. al, (2011), conducted a study of randomized controlled trials on patients with myocardial infarction complicated by cardiogenic shock. Data collection and analysis were performed according to a published protocol. Data from a total of 190 patients with acute myocardial infarction and cardiogenic shock were included in the meta analysis, about 105 patients were treated with IABP in which 85 patients served as controls, 40 patients were treated without assisting device and 45 patients with left ventricular assist device. Available evidence suggested that IABP may have a beneficial effect on hemodynamics, irrespective of myocardial infarction related cardiogenic shock.

Gao et. al, (2011) conducted a study to assess the impact of prophylactic IABP support upon C – reactive protein (CRP) level and clinical prognosis in high risk patients undergoing percutaneous coronary intervention (PCI). A total of 106 high risk patients diagnosed with acute ST elevation and non ST elevation myocardial infarction were enrolled and divided into two groups. CRP levels were determined on admission, day 3 and day 7, respectively. The troponin I peak, left ventricular functions and major cardiovascular events were compared during follow up. They found that the IABP group

had a lower TNI peak as well as CRP level after PCI. The study suggested that the use of a prophylactic intra-aortic balloon pump (IABP) in high risk patients before percutaneous coronary intervention could reduce mortality.

2. Studies related to the knowledge and practice of Nurses regarding IABP

Rushdy et. al, (2015) performed a descriptive exploratory study among 40 nurses in ICU of Cairo University Hospitals by knowledge self-administered questionnaire, and practice observational checklist. They found that the majority of the studied sample had unsatisfactory knowledge and practice level (88% & 95%) respectively. Unsatisfactory knowledge was found regarding description and physiological effects, nursing care, indications, contraindications, complications, weaning and removal of IABP in percentage of 95%, 90%, 72.5% & 57.5% and unsatisfactory practice was found regarding about preparation and initiation of IABP therapy, nursing practice during therapy, weaning and removal of IABP in percentages of (97.5%, 97.5% & 90%), respectively. Finally, knowledge level was found to differ significantly in relation to gender ($t=2.46$, at $P \leq 0.018$).

Asmaa et. al, (2017). conducted a quasi experimental research among 40 nurses and they revealed that the majority of nurses had poor knowledge and practice related to IABP before teaching program which has been improved after Also, a positive correlation was found between knowledge and practice scores of the study subjects. they concluded that empowerment of critical care nurse's knowledge and practice would have a positive impact upon their knowledge and performance. The study recommended that continuous In service training programs for the purpose of updating the knowledge and practice about IABP for critical care nurses.

A quasi-experimental one group pre and post-test design, consisted of 60 staff nurses selected by purposive sampling technique. Majority 71.7% staff nurses had reported adequate knowledge regarding IABP after structured teaching programme. The assessment of effectiveness of structured teaching programme on knowledge of staff nurses regarding IABP, revealed that, the knowledge increased after intervention is 48.96 percent at $p < 0.05$ level.(Rajni Thapa, 2018)

Development of Nursing Evidence-Based Practice Protocol

For the development of evidence based practice guidelines, an extensive systematic review was carried out by the researcher. The electronic data bases and various hand search strategies were adopted for the systematic review. The search engines included were Pubmed Central, Google Scholar, Science Direct, Cochrane Library and Proquest. All the studies identified through this search were subjected to quality check by using Johns Hopkins evidence Practice Model. The researcher obtained permission from Johns Hopkins University (https://www.ijhn-education.org) to use the Johns Hopkins Nursing Evidence Based Practice (JHN EBP) model and tools. (Annexure K)

The Protocol includes the following aspects in this study :

1. Nursing Evidence Based Practice Question Development
2. PRISMA Flow Diagram
3. Characteristics of included papers (Study design wise and Intervention wise)
4. Individual Evidence Summary

1. Nursing Evidence Based Practice Question Development

What is the problem and why is it important?

This research focuses on, care of patient with IABP upon knowledge and practice among nurses. This research work was undertaken by the researcher to seek evidence as nurse faces problems in the care of Critically ill patients and equipment.

What is the current practice?

The number of patients placed on IABP is on the rise. Nurses with GNM or BSc Nursing, do not automatically develop skills, though a few of them may have chances to see an IABP. India is becoming the health care destination of the world. A number of complications may occur during, before and after insertion of IABP care. The lack of knowledge and practice of health care providers can have a negative impact on patient outcomes and the organization.

What is the focus of the problem?

The focus of the problem is both of clinical and educational concern. IABP care is, with care provided to preserve life, prevent the condition from worsening, and promote recovery. IABP care is the initial temporary and immediate care should be given to.

How was the problem identified?

The problem was identified by the researcher as there is a lack of knowledge and practice of care of patient with IABP .

What is the scope of the problem?

In this research work the problem initially looks at the individual nurses later shifting the scope of nurses with knowledge and practice of care of patient with IABP management of patients to generalise the evidence.

What are the PICO Components?

- **P** - Population / Patient. Here it is the nurses.
- **I** – Intervention. Capacity building programme is the intervention planned.
- **C** – Comparison a comparison group is also identified who follows regular practices / routines without the given intervention.
- **O** – Outcome. The expected outcome is improvement in knowledge and practice of capacity building programme on care of patient with IABP and is based on an intervention measured by using structured knowledge questionnaire, and practice observation checklist thus increasing level of acceptability on the Intervention and enhancing Quality of Life.

PRISMA (Preferred Reporting Items for Systematic Reviews and Meta – Analyses)

Is an evidence based minimum set of items aimed at helping authors to report a wide array of systematic reviews and meta-analyses that assess the benefits and harms of a health care intervention. PRISMA focuses on ways in which authors can ensure a transparent and complete reporting of this type of research.

The two important components of PRISMA are The PRSMA checklist and The PRISMA flow diagram. In this research work, the researcher used the PRISMA flow diagram to depict the flow of information through the different phases of systematic review.

In this research work, PRISMA helped the author mainly focus and improve the reporting of systematic review of randomised controlled trials. It is further used as a basis for reporting reviews of other types of researches like cross sectional, cohort, case–control studies. Total records collected for the systematic review include 64, out of which 54 were identified through database search and 10 were identified through other searches.

Duplicate records were excluded at this stage were 25. The remaining records after undergoing screening for abstract and methodology were 39. Among 39 of these, 26 were excluded based on the exclusion criteria. The remaining 13 full text articles were assessed for eligibility, out of which 10 full text articles were excluded with reasons. Hence there were 3 studies included for qualitative synthesis / metasynthesis.

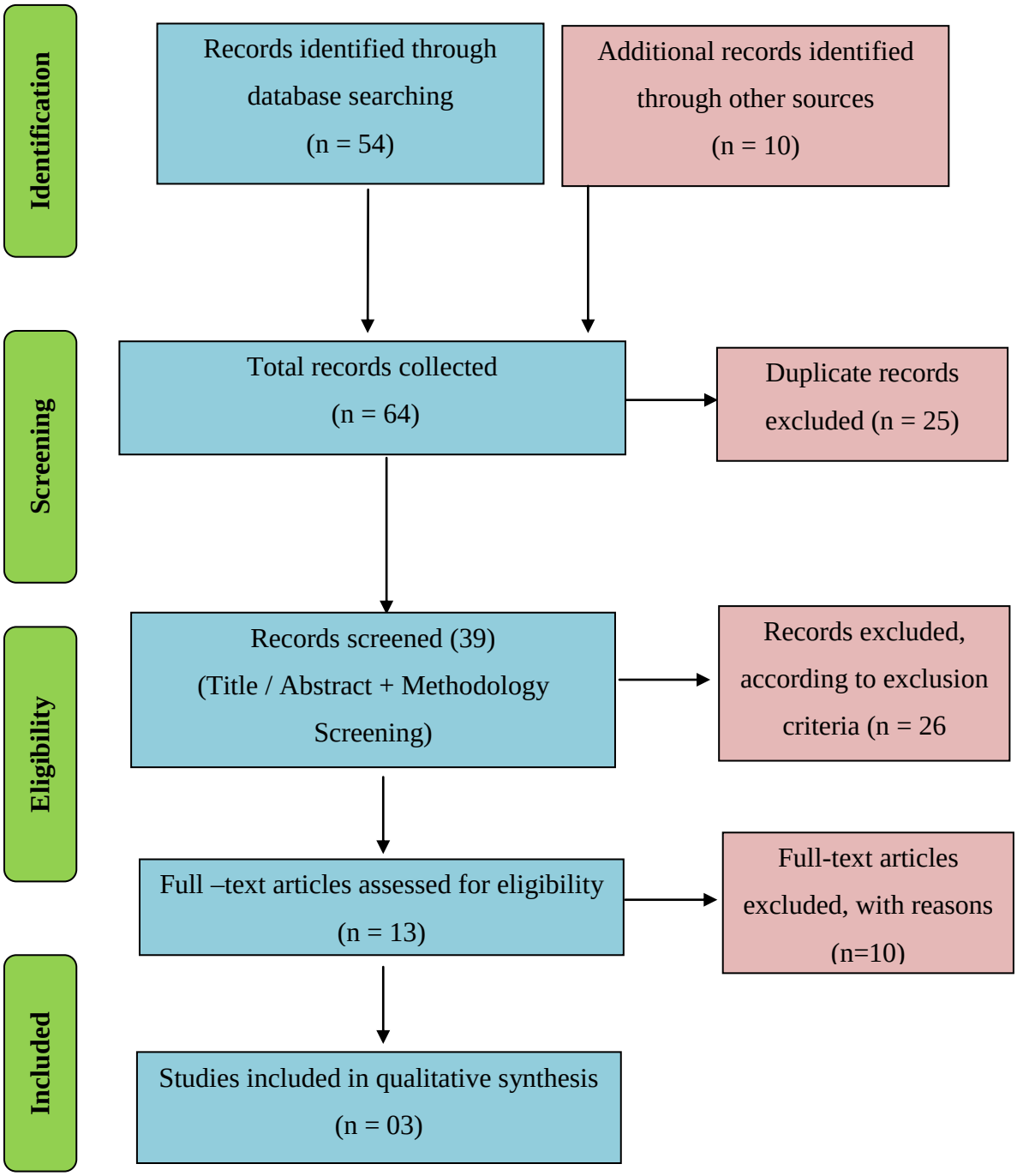

Fig.2 PRISMA Flow Diagram

EBP Question: Is Capacity Building Programme on IABP care as an Intervention Effective in Improving Knowledge and Practice

Table.1 Individual Evidence Summary Level based on Effectiveness of Capacity Building Programme regarding care of Patient with IABP upon Knowledge and Practice

Article No	Author & Date	Title / Objective	Evidence Type	Sample, Sample Size, Setting and tool used	Study findings that help answer the EBP question	Evidence Level & Quality
1.	Rushdy et al (2015)	Nurses' knowledge and practice regarding care of patients connected to intra-aortic balloon pump at Cairo university hospitals.	Descriptive exploratory study	Sample: ICU nurses Sample Size: 40 Setting Cairo university hospital Tool : knowledge self-administered questionnaire, and practice observational checklist	They found that the majority of the studied sample had unsatisfactory knowledge and practice level (88% & 95%) respectively. Unsatisfactory knowledge was found regarding description and physiological effects, nursing care, indications, contraindications, complications, weaning and removal of IABP in percentage of 95%, 90%, 72.5% & 57.5% and unsatisfactory practice was found	Level -II

Article No	Author & Date	Title / Objective	Evidence Type	Sample, Sample Size, Setting and tool used	Study findings that help answer the EBP question	Evidence Level & Quality
					regarding about preparation and initiation of IABP therapy, nursing practice during therapy, weaning and removal of IABP in percentages of (97.5%, 97.5% & 90%), respectively. Finally, knowledge level was found to differ significantly in relation to gender (t=2.46, at P ≤ 0.018).	
2.	Asmaa. et al. (2017).	Effect of Implementing Intra-Aortic Balloon Pump Teaching Program on Critical Care Nurse's knowledge and Practice	Quasi experimental research	Sample: ICU nurses Sample Size: 40 Setting: ICU Assuit Main University hospital. Tool : knowledge self-administered questionnaire, and	They revealed that the majority of nurses had poor knowledge and practice related to IABP before teaching program which has been improved after Also, a positive correlation was found between knowledge	Level -II

Article No	Author & Date	Title / Objective	Evidence Type	Sample, Sample Size, Setting and tool used	Study findings that help answer the EBP question	Evidence Level & Quality
				practice observational checklist	and practice scores of the study subjects. they concluded that empowerment of critical care nurse's knowledge and practice would have a positive impact upon their knowledge and performance. The study recommended that continuous In service training programs for the purpose of updating the knowledge and practice about IABP for critical care nurses.	
3	Rajni Thapa and Gita Neupane (2018).	Intra Aortic Ballon Pump Implantation Therapy	A quasi experimental study	Sample: ICU nurses Sample Size: 60 Setting: ICU Dehradun.	They found that majority 71.7% staff nurses had reported adequate knowledge regarding IABP after structured teaching	Level -II

Article No	Author & Date	Title / Objective	Evidence Type	Sample, Sample Size, Setting and tool used	Study findings that help answer the EBP question	Evidence Level & Quality
				hospital. Tool : knowledge self-administered questionnaire, and practice observational checklist	programme. The assessment of effectiveness of structured teaching programme on knowledge of staff nurses regarding IABP, revealed that, the knowledge increased after intervention is 48.96 percent at $p<0.05$ level	

Synthesis of Evidence

There were Three evidences on the topic, found appropriate for Individual Evidence Summary and they were tabulated and all of the Evidences belonged to Level II.

Summary

This chapter has dealt with the review of published research literature related to the problem stated. It has helped the researcher understand the impact of the problem under study. It has also enabled the investigator to design the study, develop the tool, plan for data collection procedure and analyse the collected data. This chapter has also dealt with Nursing evidence Based Practice Protocol which include NEBP question development, PRISMA flow diagram, the characteristics of included papers with regard to study design and interventions and Individual Evidence Summary of qualitative synthesis.

CHAPTER III

RESEARCH METHODOLOGY

The methodology of the research study is defined as the way data are gathered in order to answer the question and analyze the research problem. It enables the researcher to project a blueprint of the research undertaken. The research methodology involves the systematic procedure by which the researcher starts from the time of initial identification of problem to its final conclusion.

This chapter deals with a brief description of different steps undertaken by the researcher for the study. It includes research approach, research design, variables, under study, setting, population, sample size, sampling techniques, criteria for selecting sample, method of developing questionnaire, description of research instrument, validity of the tool, ethical consideration, pilot study, data collection procedure and data analysis. The present study is conducted to assess the effectiveness of a capacity building programme regarding care of patient with Intra-aortic balloon pump (IABP) upon the level of knowledge and practice among nurses.

Research approach

A research approach is the most significant part of any research. The appropriate choice of research approach depends on purpose of the research study which is undertaken.

According to Polit & Beck (2016) pre experimental research design is an extremely applied from of research and involves in finding out how well a programme, practice, procedure, or policy is working. Its goal is to assess or evaluate the success of the programme.

To accomplish the objectives of the study, a pre experimental approach was used as the researcher will assess the effectiveness of a capacity building programme regarding care of patient with IABP upon level of knowledge and practice among nurses.

Research design

The research design is the overall plan for addressing a research question, including, specifications for enhancing the study's integrity (Polit & Beck, 2016). It is the overall blue print for the researchers to select and carry out the study. A research design incorporated is the most important methodological design that a researcher works in conducting a research study. It helps the investigator in the selection of the subjects, observation, types, of statistical method to be used to interpret the data.

The research design used to in this study was a pre experimental one group pretest and posttest research design. It fulfills the criteria such as manipulation without control.

$$O_1 \quad x \quad O_2$$

O_1 - Pretest assessment of knowledge and practice regarding IABP care

X- Capacity building program, a structured educational programme, regarding information, steps and guidelines about care of patient with IABP followed by demonstration was provided to the selected samples of nurses in 10 session, 3 days (4 hours/day) for each batch of 10 nurses using power point presentation and demonstration.

O2 - Posttest assessment of knowledge and practice IABP care among Nurses.

Research Variables

Variables are anything that can change or anything that is liable to vary.

Independent variable

The variable that is believed to cause and influence the dependent variables is called independent variables. In this study, Capacity building program on IABP care,

which includes care of patient with IABP, before insertion, during insertion and after insertion of IABP.

Dependent variables

The variables hypothesized to depend on or be caused by independent variable is the called the dependent variable. In this study, the dependent variables were Knowledge and practice regarding care of patient with IABP among Nurses.

Attribute variables

It is the variable that describes the study sample characteristics. In this study the attribute variables were demographic variables of the nurses such as Age, gender, educational level, years of experience, previous information regarding care of patient with IABP.

Research setting

Polit and Beck (2016), stated that it is the physical location and conditions in which data collection takes place in a study. The study was conducted in 1200 bedded Apollo Main Hospitals at Greams road and 350 bedded, Apollo Specialty Hospital, Vanagaram, Chennai. Cardiac unit comprises of cardiac cathlab, Acute Intensive Coronary Care Unit (AICCU) and Cardio Throacic Intensive Care Unit (CT ICU). Apollo Main Hospitals at Greams Road has 50 bedded cardiac unit and Apollo Specialty Hospitals, Vanagaram has a 20 bedded cardiac unit. An average of 2 to 3 patients per day are on IABP .

Population

Population is the entire aggregate of cases which meet the designated set of criteria. The Target Population is the group of population the researcher aims to study and

to whom the study findings was generalized. The accessible population is the aggregate of cases that conform to the designated Criteria and that are accessible as subjects for a study.

Target population

Target population is the group that the researcher aims to study and on whom the study findings will be generalized. In this study, the target population included all those nurses who met the inclusion and exclusion criteria.

Accessible population

It is the group that the researcher finds in the study area. In this study, the accessible population was the group of nurses working in the selected hospitals in Chennai.

Sample

Sample consists of subject of units that comprises of the population of those selected to participate in a study. (Polit &Beck 2012) who fulfill the inclusion and exclusion criteria.

Sample size

The sample consisted of 60 nurses (30 nurses in Apollo Main Hospital and 30 Apollo specialty hospital) who meet the inclusion and exclusion criteria .

Sampling technique

Polit &Beck (2016) stated that sampling is the process of selecting a portion of the population to represent the entire population. The Setting was chosen based on the feasibility the availability of samples. The samples were choosen using the non-probability purposive sampling.

Sampling Criteria

Inclusion criteria

The study included the nurses who are

- working in cardiac units of Apollo Main Hospital and Apollo Specialty Hospital
- with Diploma or B.Sc (N) qualification.
- available at the time of data collection.
- who are willing to participate in the study.

Exclusion criteria

The study excluded the nurses who are

- not willing to participate in the study
- unregistered Nurses or Nursing Associates

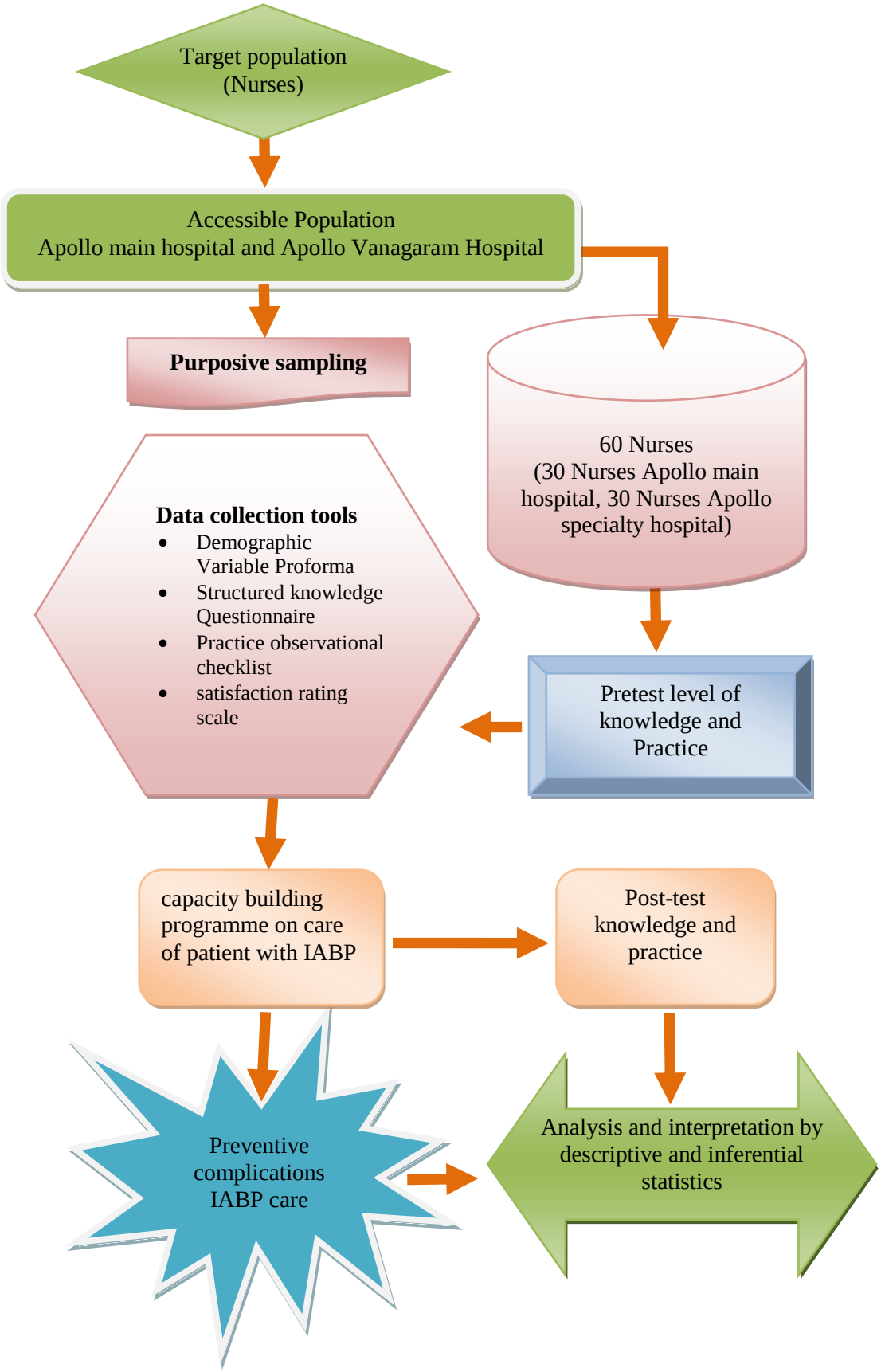

Fig 3 : Schematic Representation of the Research study

Selection and Development of Study Instruments.

Method of developing tool

The data collection instrument was developed through extensive review of literature and consultation with experts and guidance of faculty members. Instrument used in this study were demographic variable Performa, structured knowledge questionnaire, practice observation checklist, rating scale for level of satisfaction regarding care of patient with IABP.

The instruments to be used in the study are-

- Demographic variable Performa of nurses.
- Structured questionnaire on Knowledge regarding care of patient with IABP.
- Observation checklist to assess the Practice regarding care of patient with IABP.
- Rating scale on the acceptability of capacity building programme .

Demographic variables Proforma of nurses

Demographic variables for nurses consist of age, gender, education, years of experience in ICU, previous experience of taking care of IABP patients.

Structured Knowledge Questionnaire for Nurses Regarding Intra-Aortic Balloon Pump (IABP) care

It was the structured questionnaire developed by the investigator to assess the level of knowledge regarding IABP care among nurses. It consists of 30 multiple questions that include the items related to concepts of care of patient with IABP, before, during, after, insertion of IABP care. There are four options of one correct answer and three distractors. Each correct answer was given score of 1 and wrong answer was given a score of 0. Hence the total obtainable score was 0 - 30. Total marks scored for 30 questions were converted to percentage and interpreted as follows.

Scoring Interpretation:

Percentage	Interpretation
<50	Inadequate knowledge
51-75	Moderately adequate knowledge
76-100	Adequate knowledge

Practice Observation Checklist to Assess the Practice of Nurses about IABP Care

This observation checklist was developed by the investigator to assess the practice of Nurses. The checklist consists of 20 items that include items related to care of patient with IABP, monitor vital signs, pedal pulse, all coagulation levels (ACT, PT INR, and APTT) and input and output chart. The scoring ranges performed -2, partially performed -1 and not performed-0. Hence the obtainable score was 0-40. Total marks was converted to percentage and the converted percentage was interpreted as a following.

Scoring interpretation

Percentage	Interpretation
Less than 25	Poor
26-50	Good
51-75	Very good

Rating scale on the acceptability of Capacity building programme

The rating scale was developed by the investigator to assess the level of acceptability of Nurses on capacity building program and its effectiveness. The rating scale consists of 10 items which include items related to characteristics of researcher, capacity building programme and effectiveness of capacity building programme. The responses range from Highly acceptable - 4, Acceptable -3, Unacceptable -2, and Highly unacceptable -1.

Total marks scored were converted to percentage and the converted percentage was interpreted as the following.

Scoring interpretation:

Percentage	Interpretation
76-100	Highly acceptable
51-75	Acceptable
25-50	Unacceptable
Less than 25	Highly unacceptable

Psychometric Assessment of the study instruments

Validity of the instruments

Content Validity is the degree to which an instrument adequately represent the universe of content for the concept being measured (Polit & Beck, 2016).

Content validity of the tool was obtained from the experts in the field of cardiology, cardiac thoracic surgery) medical surgical nursing. Based on their suggestions the investigator modified the items and finalized the tool for study.

Reliability of the instruments

Reliability is the degree of consistence or dependability with which an instrument measures an (Polit& Beck, 2016). It refers to the extent to which the same results are obtained on repeated administration of the instrument.

Components	Method	r value
Knowledge	Test retest reliability (Pearson correlation coefficient)	0.78
Practice	Inter-Rater-reliability	0.73

Intervention Protocol

In the initial or pre assessment phase a good rapport was established with the Nurses. The knowledge was assessed using a self-administered questionnaire consisting of 30 questions and each of them too 30 minutes to complete the questionnaire. After that the nurses were assessed about their practices on pre and post procedural care of patients 2-3 days undergoing IABP without their knowledge. A criteria checklist was used to assess the pre and post procedural care of patients undergoing IABP.

The Nurses who completed pretest were given educational intervention on IABP care in groups using power point presentation and each session lasted for 1½ hours. The program covered the general aspects of care of IABP and its indications, contraindications, pre procedural care, and complications. All the Nurses participated in the educational program with great interest.

A post test was conducted after 7 days from the day of capacity building program with self-administered questionnaire and observational checklist for the same group in same manner which was followed in pretest.

Pilot Study

According to Polit & Beck (2016) the pilot study is a small scale version, or trial run, done in preparation for a major study, sometimes called a feasibility study. The purpose is to find the feasibility and practicability of the study and to finalize the tools. Tools were modified as required .pilot study was conducted on the sample comprising of at least 10 % population for the main study.

A pilot study was conducted on 14 nurses (Apollo OMR hospital, Chennai).The study was conducted after obtaining permission from the authorities and nurses. Written informed consent was obtained from the participants. The samples were chosen by

purposive sampling technique. Structured knowledge questionnaire was used to assess the pretest knowledge on IABP care. The practice of nurses on IABP care was observed using observational checklist. After 7 days interval, a posttest was done with same structured knowledge questionnaire. Analysis of the data was done using paired t test and results revealed that the study was feasible.

Protection of Human Rights

- Permission was obtained from the principal, Apollo College of Nursing for conducting the study.
- The study was conducted after obtaining approval from Ethical Committee, Apollo Hospitals, Chennai.
- The setting permission was obtained from Apollo Main Hospitals & Apollo Specialty Hospitals, Chennai.
- The participants were given explanation of the study and written consent was obtained from them.
- Confidentiality of the data was maintained throughout the study.

Data collection procedure

Data collection is process of gathering information needed to address a research problem. The formal permission was obtained from the college authority and ethical committee clearance was taken. Setting permission letter was obtained from Apollo Main Hospital and Apollo Specialty Hospitals, Chennai. Sixty samples of nurses who met inclusion and exclusion criteria were chosen using the purposive sampling technique. Data was collected for a total periods of 6 weeks on selected samples. The data collection was completed among nurses in 10 sessions, 3 days (4 hours/day) for each batch 10 nurses. Data was collected in Apollo Main Hospital from 5th December, 2017 to 20th

December, 2017 and in Apollo specialty hospitals from 15th January to 23th January, 2018.

The session was started at 2 pm. After initial introduction, the researcher obtained consent from the nurses to participate in the study. Demographic variable proforma was distributed among the participants and collected after 10 minutes. A pretest knowledge and practice regarding care of patients with IABP, was measured for all the samples using predetermined and pretested tools through self-administration method for 30 minutes. Then the capacity building programme regarding care of patient with IABP was started at 2.00 pm for participants by using power point presentation, (introduction, definition, purposes, indications, contraindications, steps of IABP care, care of patient before, during, after insertion of IABP) and demonstration regarding steps of taking care of patient with IABP. Tea break was given from 3.30 pm to 4.00 pm to the participants after 30 minutes of the debriefing session. Return demonstration was done by participants from 4.00 pm to 5.00 pm and the session concluded .The samples were followed up after 1 week to assess the level of knowledge and practice regarding care of patient with IABP and level of acceptability of capacity building programme. The data were organized and analysis was done using descriptive and inferential statistics.

Ethical principles such as the principle of beneficence, principle of human dignity, principle of confidentiality and principle of informed consent were followed by the researcher throughout the study. Debriefing was done after the data collection from the nurses. The data collection was done over a period of 6 weeks.

Plan for Data Analysis

Data was analyzed by using Descriptive and Inferential Statistics

Table 2: Plan for Data Analysis

Statistics	Method	Purpose
Descriptive statistics	Frequency and percentage distribution	To Describe Demographic variables Level of knowledge and practice Acceptability of capacity building programme
	Mean, Standard Deviation	To Describe Knowledge score and Practice score among nurses
Inferential statistics	Paired "t" test	To Compare the per-test and post-test score of knowledge and practice among nurses.
	Pearson's correlation (r)	To find out the Correlation between the scores of knowledge and practice regarding IABP care among nurses.
	Chi – square (x2) test	To find out the Association between the level of knowledge and practice regarding IABP care and selected demographic variables of the nurses.

Summary

This chapter dealt with the research approach, research design, setting, population, and sample, sampling technique, sampling criteria, development of study instruments, reliability and validity of the instruments, pilot study, data collection procedure and plan for data analysis.

CHAPTER IV

ANALYSIS AND INTERPRETATION

Data analysis is conducted to reduce, organize and provide a meaning to the data. The results obtained from data analysis require interpretation to make the finding meaningful. Interpretation of data involves examining the results obtained from analysis of data, forming conclusions, considering the implications for nursing, exploring the significance of the findings and suggesting further studies (Polit & Beck, 2016).

This chapter deals with analysis and interpretation including both descriptive and inferential statistics. Statistics is the field of the study concerned with techniques or methods of collection of data, classification, summarization, interpretation, drawing inferences, testing of hypothesis, making recommendations, etc. (Polit & Beck, 2016)

Data was analyzed according to the objectives and hypothesis of the study. Analysis of the study was compiled after all data was transferred to the master coding sheet. The investigator used descriptive and inferential statistics for analysis. The data were analyzed, tabulated and interpreted using appropriate descriptive and inferential statistics.

Organization of Findings

The findings of the study have been organized and are presented under following headings:

- Frequency and Percentage Distribution of Demographic Characteristics of Nurses.
- Frequency and Percentage Distribution of Pretest and Posttest Level of Knowledge regarding IABP care among Nurses.

- Comparison of the Mean and Standard Deviation of Knowledge Scores of Nurses regarding IABP care.
- Frequency and Percentage Distribution of Pretest and Posttest Level of Practice regarding IABP.
- Comparison of the Mean and Standard Deviation of Practice Scores of Nurses on IABP care.
- Correlation between the scores of Knowledge and Practice Scores of Nurses regarding IABP care.
- Frequency and percentage distribution on Level of Acceptability of Nurses on Capacity Building Programme regarding IABP care.
- Association between Selected demographic variables and the Level of Knowledge of Nurses before and after Capacity Building Programme regarding IABP care among Nurses.
- Association between Selected Demographic Variables and the Level of Practice of Nurses before and after Capacity Building Programme regarding IABP care among Nurses.

Table: 3

Frequency and Percentage Distribution of Demographic Variables of Nurses.

(N = 60)

Demographic Characteristics	f	%
Age in years		
21 to 25 years	48	80
26 to 30 years	7	11.7
31 to 35 years	5	8.3
Above 35 years	0	0
Gender		
Male	16	26.7
Female	44	73.3
Years of ICU Experience		
Up to 2 years	32	53.4
3 to 5 years	22	36.6
6 to 10 years	4	6.7
Above 10 years	2	3.3
Previous experience of IABP patient care		
Yes	46	76.7
No	14	23.3

It is inferred from the above table that the majority of the nurses were age between 21 to 25 years (80%), females (73.3%), with an educational level of B.Sc nursing (70%), and more than half of them had up to 2 years experience in ICU (53.4%). Most of them had previous experience in the care of patient with IABP (76.7%).

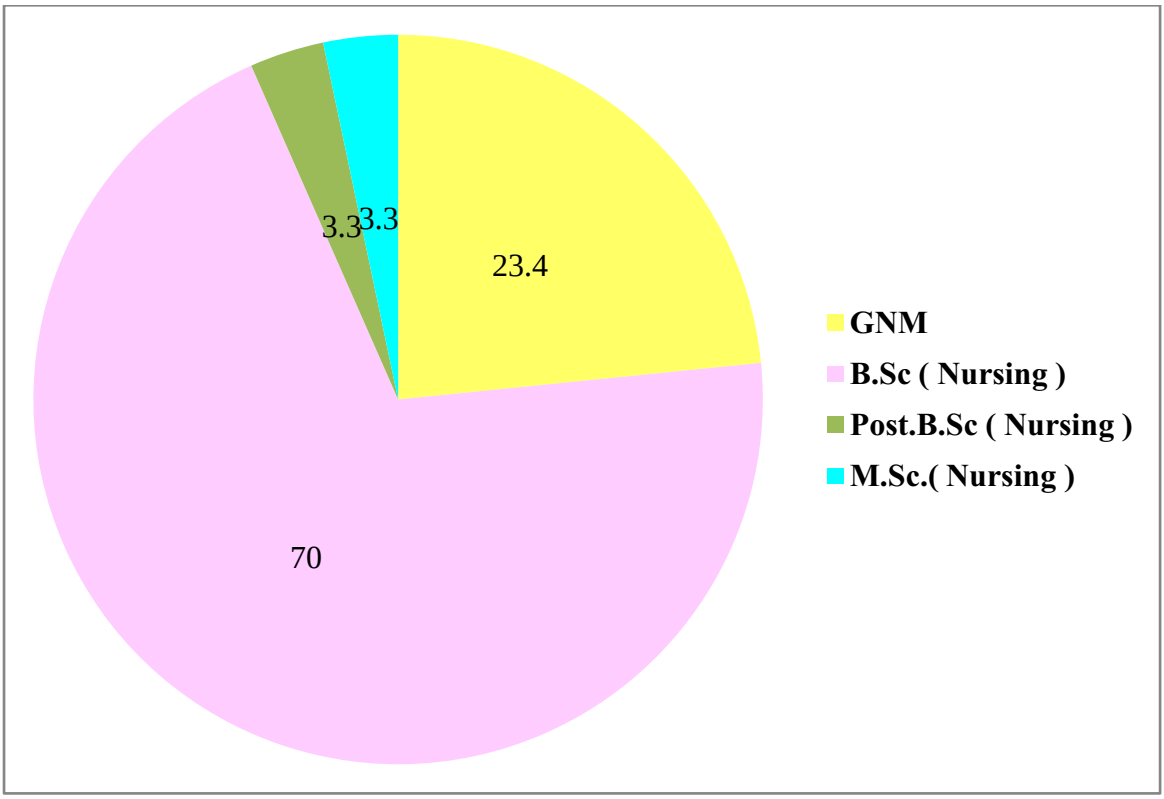

Figure. 4 : Percentage Distribution of the Educational Level of Nurses

Table .4

Frequency and Percentage Distribution of Pretest and Posttest Level of Knowledge of Nurses regarding care of Patient with IABP. (N = 60)

Level of Knowledge	Pretest	%	Posttest	%
Adequate (23- 30)	0	0	16	26.67
Moderately Adequate (16 -22)	48	80	44	73.33
Inadequate (<15)	12	20	0	0

The data presented in table 4, depicts that most of the nurses had moderately adequate knowledge (80%) and 20% of them had inadequate knowledge regarding IABP care in the pretest, while majority of staff nurses gained moderately adequate knowledge (73.33%) and 26.67 % of them had gained adequate knowledge in the posttest.

Table: 5

Comparison of Mean and Standard Deviation of Knowledge of Nurses regarding care of Patient with IABP. (N = 60)

Knowledge	Mean	SD	t- value
Pretest	16.48	2.1	13.6***
Posttest	22.95	2.7	

***p <0.001**

It is inferred from the table 5 that there was a significant difference between pretest knowledge score (M = 16.48, SD = 2.1) and posttest knowledge score (M =22.95, SD = 2.7) regarding IABP care among nurses with t-value of 13.6 significant at $p < 0.001$ level. Hence the null hypothesis **$H_0$1** stating that, "There will be no significant difference between the pretest and posttest level of knowledge and practice regarding IABP care among Nurses" was rejected.

Table: 6

Frequency and Percentage Distribution of Pretest and Posttest level of Practice of Nurses regarding Care of Patient with IABP. (N = 60)

Level of Practice	Pretest	%	Posttest	%
Good (75 -100%)	0	0	13	21.67
Average (50 -74 %)	40	66.67	47	78.33
Poor (below 50 %)	20	23.33	0	0

The data presented in table 6 depicts that the majority of the Nurses had average level of practice (66.67%) and 23.33% of them had poor practice regarding care of patient with IABP in the pretest. In the posttest, majority of the nurses had average level practice (78.33%), and 21.67% of them had good practice after the capacity building programme on care of patient with IABP.

Table: 7

Comparison of Mean and Standard Deviation of Practice regarding care of patient with IABP Among Nurses. (N = 60)

Practice score	Mean	SD	t- value
Pretest	17	3.99	20.06***
Posttest	28.36	3.8	

***p<0.001**

It is inferred from table 7, that there was a significant difference between the pretest practice scores (M = 17, SD = 3.99) posttest practice scores (M =28.36, SD =3.8) regarding IABP care among nurses with a "t" value of 20.06, significant at p <0.001. Hence the null hypothesis **$H_0$1** stating that, "There will be no significant difference between the pretest and posttest level of knowledge and practice of nurses regarding care of patient with IABP" was rejected.

Table: 8

Frequency and percentage Distribution on Level of Acceptability of Nurses on Capacity Building Programme regarding care of Patient with IABP. (N=60)

Domain	Highly acceptable		Acceptable		Unacceptable		Highly Unacceptable	
	f	%	f	%	f	%	f	%
Approach of the researcher	57	95	3	5	0	0	0	0
Capacity building programme Administration	54	90	6	10	0	0	0	0
Effectiveness of Capacity building programme	57	95	8	5	0	0	0	0

The data from table 8, depicts that the majority of the nurses found the capacity building programme highly acceptable with regard to the approach of the researcher (95%), Administration of capacity building programme (90%) and its effectiveness (90%).

Table :9

Correlation Between the scores of Knowledge and Practice Regarding care of patient with Intra-aortic balloon pump (IABP) among Nurses. (N = 60)

Category		Mean	SD	r- value	p- value
Pretest	Knowledge	16.48	2.1	0.18	p>0.05
	Practice	22.95	2.7		
Posttest	Knowledge	17	3.99	0.41***	p < 0.001
	Practice	28.36	3.8		

****p<0.001**

It can be interpreted from table 9, that there was a positive correlation between the posttest knowledge and practice of (r=0.41) nurses at p<0.001 level. Hence the null hypothesis **H_O2** stating that, "There will be significant correlation between the posttest level of knowledge and practice of nurses regarding care of patient with IABP" was rejected

Table :10

Association between Selected Demographic Variables and the Level of Knowledge of Nurses before and after Capacity Building Programme regarding care of patient with IABP. (N=60)

Selected variables	Pre test		χ^2	Post test		χ^2
	Upto mean	Above mean		Upto mean	Above mean	
Age in years						
Upto 25 years	22	26	0.58	25	23	0.13
Above 25 years	7	5		7	5	
Gender						
Male	4	12	3.94 *	11	5	2.12
Female	25	19		21	23	
Educational level						
GNM	6	8	0.2	6	8	0.79
Above B.SC [N]	23	23		26	20	
ICU experience						
Upto 2 years	18	14	1.66	19	13	0.96
Above 2 years	11	17		13	15	
Previous experience of care of patient with IABP						
Yes	23	23	0.21	23	23	0.79
No	6	8		9	5	

***p<0.05**

The finding from the table 10, shows that there was a significant association between pretest level of knowledge regarding IABP care among nurses and gender $\chi 2=3.94$ at $p<0.05$ level. There was no significant association between pretest and posttest level of knowledge and other demographic variables of Nurses such as age, educational level, ICU experience and previous experience of IABP patient care. Hence the null hypothesis **$H_0$3** stating that, "There will be no significant association between the selected demographic variables and the pretest and posttest level of knowledge regarding IABP care nurses" was retained except with the variable of gender .

Table: 11

Association between Selected Demographic variables and the Level of Practice before and after Capacity Building Programme regarding care of Patient with IABP among Nurses. (N = 60)

Selected variables	Pre test			Post test		
	Upto mean	Above mean	χ 2	Upto mean	Above mean	χ 2
Age in years						
Upto 25 years	27	21	.13	36	12	0.28
Above 25 years	6	6		8	4	p<0.001
Gender						
Male	8	8	0.21	12	4	0.019
Female	25	19		32	12	p<0.001
Educational level						
GNM	8	6	0.027	11	3	0.17
above B.Sc [N]	25	21		33		p<0.001
ICU experience						
Upto 2 years	17	15	0.08	23	9	0.07
Above 2 years	16	12		21	7	p<0.001
Previous experience of care of patient with IABP						
Yes	26	20	0.75	33	13	0.18
No	7	7		11	3	p<0.001

****p<0.01, ***p<0.001, NS=Not Significant # Yates correction value**

The finding from the table 11, shows that there was no significant association between pretest and posttest level of practice regarding IABP care nurses and their demographic variables namely age, gender, educational level, years of ICU experience and previous experience of care of patient with IABP. Hence the null hypothesis **$H_0$4** stating that "There will be no significant association between the selected demographic variables and the level of practice regarding IABP care among nurses" was retained.

Summary

This chapter has dealt with the analysis and interpretation of the data obtained by the researcher. The analysis of the results showed that capacity building programme regarding care of patient with IABP was effective to enhance the knowledge and practice of Nurses by comparing the pretest and posttest level of knowledge and practice of Nurses and correlation between the pretest and posttest on knowledge and practice of Nurses.

CHAPTER V

DISCUSSION

An Pre Experimental Study to Assess the Effectiveness of Capacity building program regarding care of patient with Intra-aortic balloon pump (IAPB) upon Knowledge and Practice among Nurses at selected Hospitals , Chennai.

Objectives of the Study

1. To assess the level of knowledge and practice regarding care of patient with IABP in pretest and posttest.
2. To determine the effectiveness of capacity building program regarding care of patient with IABP by comparing the pre and posttest level of knowledge and practice among nurses.
3. To determine the level of acceptability of nurses regarding capacity building program on care of patient with IABP among nurses.
4. To determine the correlation between the scores of knowledge and practice regarding care of patients with IABP among nurses.
5. To find out the association between the level of knowledge regarding care of patient with IABP and the selected demographic variables of the nurses, in pretest and posttest.
6. To find out the association between the level of Practice regarding care of patient with IABP and the selected demographic variables of the nurses, in pretest and posttest.

The conceptual framework for this study is based on “J.W.Kenny’s open system model (2002). A pre experimental study of one group pre-test and post-test design was

used. The study included 60 nurses selected by purposive sampling technique. The present study was conducted in Apollo Main Hospital & Apollo Specialty Hospital, Chennai. The variables of the study were capacity building programme, knowledge and practice of nurses regarding care of patient with IABP.

A extensive review of literature and guidance by experts laid foundation for the development of demographic variable proforma, structured knowledge questionnaire and practice observation checklist. The data collection tools were validated and reliability was established. After two weeks of pilot study, the data collection for the main study was conducted.

Pretest assessment consisted of collecting the baseline data using demographic variables proforma, the pretest level of knowledge and practice regarding care of patient with IABP by using structured knowledge questionnaire and practice observation checklist. The capacity building programme regarding care of patient with IABP was provided to the group of nurses in 10 sessions, 3 days (4 hours/day) for each batch of 10 nurses. The data obtained was analyzed using descriptive and inferential statistics.

The discussion was presented under the as following headings

- Frequency and Percentage Distribution of Demographic variables of nurses.
- Frequency and Percentage Distribution of Pretest and Posttest Level of Knowledge regarding care of patient with (Intra-aortic balloon pump) IABP.
- Comparison of Mean and Standard Deviation of pre-test and post-test scores of Knowledge and practice regarding care of patient with (Intra-aortic balloon pump) IABP among nurses.
- Correlation between the scores of Knowledge and Practice regarding care of patient with (Intra-aortic balloon pump) IABP among nurses.

- Frequency and percentage distribution on Level of Acceptability on Capacity Building Programme regarding care of patient with (Intra-aortic balloon pump) IABP among nurses.
- Association between Selected demographic variables and the level of knowledge and practice before and after capacity building programme regarding care of patient with (Intra-aortic balloon pump) IABP among nurses.

Frequency and percentage distribution of demographic characteristics of Nurses

Study findings revealed that the majority of the nurses were in the aged 21 to 25 years (80%), females (73.3%) with an educational level of B.Sc nursing (70%). More than half of them had up to 2 years experience in ICU and 53.4% and most of them had previous experience in the care of patient with IABP (76.7%).

The first objective was to assess the per-test and post-test scores of Knowledge regarding care of patient with IABP among Nurses.

Capacity building programme on IABP care strengthens the knowledge of nurses and improves their practice. It helps to prevent complications in IABP patients. Thus knowledge on IABP care knowledge result in better outcomes for IABP patients.

The findings in this study infer that there most of Nurses (80%) had moderately adequate knowledge and 20% had inadequate knowledge. After the implementation of capacity building programme on IABP care, majority of staff nurses (73.33%), gained moderately adequate knowledge and 26.67 % gained adequate knowledge.

These findings are consistent with experimental study conducted by Chandrasekhar et al (2015) on care of patient among 569 females (72%) and 222 males (28%). The assessment showed that the knowledge of IABP care was moderate (56%)

which resulted in competent IABP care. Good outcomes were noted in 80% cases and complications were prevented. About 20% of cases expired. IABP care predominantly affects cardiac patient's population and most of these are preventable. The study findings show that of complications of IABP can be prevented and good outcomes can be achieved with education of IABP care.

Elahi et. al, (2009) conducted a study about complication of intra-aortic balloon pump in a cohort of hospitalized patients. Of the total 104 patients included, with mean age 65 +/ - 11 years, 52% were men and among them 26 (25%) of them presented with vascular complications, more frequently ischemia (25%). Peripheral vascular disease was the risk factor more frequently related to complication. Nursing records showed that the use of catheter was recorded in 30 cases (29%). Peripheral vascular disease was the most common complication of intra-aortic balloon pump (IABP).

Serraino et. al, (2010) performed a study about insertion of IABP during coronary artery bypass graft. Among the 8,872 Coronary patients 2.1% received intra operative or post-operative IABP. Factors such as age greater than 70 years, moderate and poor left ventricular dysfunction, previous cardiac surgery, emergency operations, left main disease and recent myocardial infarction were the conditions that needed IABP insertion. The results shows that the clinical data can be used to identify high risk patient who may benefits from elective insertion of IABP during coronary artery bypass graft.

Hence the above studies, suggest that there is a need for additional training programme on IABP care for nurses to improve the quality of care of patients with IABP care in order to prevent fatal complications.

The second objective of this study was to evaluate the effectiveness of a capacity building programme regarding care of patient with IABP by comparing the pre-test and post-test scores of knowledge and practice of nurses

There was a significant difference between pretest knowledge score (M = 16.48, SD = 2.1) and posttest knowledge score (M =22.95, SD = 2.7) regarding IABP care among nurses with t-value of 13.6 at $p < 0.001$level. Hence the null hypothesis $H_0$1 stating that "There will be no significant difference between the pretest and posttest level of knowledge and practice regarding IABP care among Nurses" was rejected.

Rushdy et. al, (2015) performed a descriptive exploratory study among 40 nurses in ICU of Cairo University Hospitals by knowledge self-administered questionnaire, and practice observational checklist. They found that the majority of the studied sample had unsatisfactory knowledge and practice level (88% & 95%) respectively. Unsatisfactory knowledge was found regarding description and physiological effects, nursing care, indications, contraindications, complications, weaning and removal of IABP in percentage of 95%, 90%, 72.5% & 57.5% and unsatisfactory practice was found regarding about preparation and initiation of IABP therapy, nursing practice during therapy, weaning and removal of IABP in percentages of (97.5%, 97.5% & 90%), respectively. Finally, knowledge level was found to differ significantly in relation to gender (t=2.46, at $p \leq 0.018$).

After IABP care education, the majority of the Nurses received perfect point or near to perfect point in the evaluation of their IABP care practices.

The second objective of this study was to evaluate the effectiveness of a capacity building programme regarding care of patient with IABP by comparing the pre-test and post-test scores of knowledge and practice of nurses

Majority of the Nurses had average level of practice (66.67%) and 23.33% of them had poor practice regarding IABP care in the pretest. In the posttest majority of the nurses had average level practice (78.33%), and 21.67% of them had good practice after the capacity building programme on IABP care.

There was a significant difference between the pretest practice scores (M = 17, SD = 3.99) posttest practice scores (M =28.36, SD =3.8) regarding IABP care among nurses with a "t" value of 20.06, significant at $p < 0.001$. Hence the null hypothesis $H_0 1$ stating that "There will be no significant difference between the pretest and posttest level of knowledge and practice regarding IABP care among Nurses" was rejected.

Asmaa et. al, (2017) conducted a quasi experimental research among 40 nurses and they revealed that the majority of nurses had poor knowledge and practice related to IABP before teaching program which has been improved and positive correlation was found between knowledge and practice scores of the study subjects. they concluded that empowerment of critical care nurse's knowledge and practice would have a positive impact upon their knowledge and performance.

Hence the above studies suggest that programme are effective and are consistent same as present study.

The third objective was to determine the level of acceptability of nurses towards the capacity building programme regarding care of patient with IABP.

The findings showed a high level of acceptability towards capacity building programme among participants. Majority of the Nurses were highly acceptable regarding the approach of the researcher (95%), Administration of capacity building programme (90%) and its effectiveness (90%). These findings are conclusive that capacity building

programme is highly effective in improving the acceptability of nurses towards gaining knowledge and practice regarding care of patient with IABP.

While making a plan for any intervention, it is important to consider the participants acceptability to ensure their co-operation and to continue the intervention even after completion of the study. Acceptability arises from a person when intervention is balanced between the study participant's choice and professional responsibility.

The fourth objective was to determine the correlation between the scores of knowledge and practice care of patient with among IABP Nurses.

There was a positive correlation between the posttest knowledge and practice of ($r=0.41$) nurses significant at $p<0.001$ level. Hence the null hypothesis H_O3 stating that,' there will be significant correlation between the posttest level of knowledge and practice on care of patient with IABP among Nurses was rejected

The fifth objective was to find out the association between the level of knowledge and practice regarding care of patient with IABP and selected demographic variables of nurses

There was a significant association between pretest level of knowledge regarding IABP care among nurses and gender ($\chi 2= 3.94$) significant at $p<0.05$ level. knowledge score were higher in male nurses then the female nurses. There was no significant association between pretest and posttest level of knowledge and other demographic variables of Nurses such age, educational level, ICU experience and previous experience of IABP patient care. Hence the null hypothesis $\mathbf{H_02}$ stating that "There will be no significant association between the selected demographic variables and the pretest and posttest level of knowledge regarding IABP care nurses" was retained with regard to age,

educational level, ICU experience and previous experience of IABP patient care except gender .

Summary

This chapter has discussed the various aspects of the study findings, emphasized the objectives of the study, major findings of the demographic variables, level of knowledge and practice of Nurses, association between the selected demographic variables and pretest and posttest knowledge and practice of Nurses and correlation between the pretest and posttest knowledge and practice of Nurses.

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATIONS, RECOMMENDATIONS

The heart of the study is writing a meaningful summary of the findings. The investigator concised the whole study and made it for future references. This chapter deals with the summary, conclusion, implications and recommendations of the study.

This is the most creative and demanding part of the study. This chapter gives a brief account of the present study including the conclusion drawn from the findings, recommendations, limitations of the study, suggestions for the study and nursing limitation.

Summary

A Pre Experimental study to assess the Effectiveness of a Capacity building program regarding care of patient with IAPB upon the level of Knowledge and Practice among Nurses at Selected hospitals, Chennai.

Objectives of the Study

1. To assess the level of knowledge and practice regarding care of patient with IABP in pretest and posttest
2. To determine the effectiveness of capacity building program regarding care of patient with IABP by comparing the pre and posttest level of knowledge and practice among nurses.
3. To determine the level of acceptability of nurses regarding capacity building program on care of patient with IABP among nurses

4. To determine the correlation between the scores of knowledge and practice regarding care of patients with IABP among nurses.
5. To find out the association between the level of knowledge regarding care of patient with IABP and the selected demographic variables of the nurses, in pretest and posttest
6. To find out the association between the level of Practice regarding care of patient with IABP and the selected demographic variables of the nurses, in pretest and posttest

Null Hypotheses

Ho1: There will be no significant difference between the pretest and posttest scores of knowledge and practice regarding care of patient with IABP among nurses.

Ho2: There will be no significant correlation between the scores knowledge and practice regarding care of patient with IABP among nurses

Ho3: There will be no significant association between the level of knowledge regarding care of patient with IABP selected demographic variables among nurses.

Ho4: There will be no significant association between the level of practice regarding care of patient with IABP selected demographic variables among nurses.

Major Findings of the Study

Frequency and Percentage Distribution of Demographic Variables of Nurses

In this study, the majority of the nurses were in the aged 21 to 25 years (80%), females (73.3%) with an educational level of B.Sc. nursing (70%) and more than half of them had up to 2 years' experience in ICU (53.4%) and most of them had previous experience care of patient with IABP (76.7%).

Frequency and Percentage Distribution of Pretest and Posttest level of Knowledge regarding care of Patient with IABP

In this study, most of the nurses had moderately adequate knowledge (80%) and 20% of them had inadequate knowledge regarding IABP care in the pretest, while majority of staff nurses gained moderately adequate knowledge (73.33%) and 26.67 % of them had gained adequate knowledge in the posttest

Comparison of Mean and Standard Deviation of Knowledge regarding care of Patient with IABP among Nurses.

In this study there was a significant difference between pretest knowledge score (M = 16.48, SD = 2.1) and posttest knowledge score (M =22.95, SD = 2.7) regarding IABP care among nurses with t-value of 13.6 at $p < 0.001$ level. Hence the null hypothesis **$H_0$1** stating that "There will be no significant difference between the pretest and posttest level of knowledge and practice regarding IABP care among Nurses" was rejected.

Frequency and Percentage Distribution of Pretest and Posttest Level of Practice regarding care of Patient with IABP.

In the study majority of the Nurses had average level of practice (66.67%) and 23.33% of them had poor practice regarding IABP care in the pretest. In the posttest majority of the nurses had average level practice (78.33%), and 21.67% of them had good practice after the capacity building programme on IABP care.

Comparison of Mean and Standard Deviation of Practice regarding Care of Patient with IABP among Nurses

In this study, there was a significant difference between the pretest practice scores (M = 17, SD = 3.99) posttest practice scores (M =28.36, SD =3.8) regarding IABP care

among nurses with a "t" value of 20.06, significant at p <0.001. Hence the null hypothesis **$H_0$1** stating that "There will be no significant difference between the pretest and posttest level of knowledge and practice regarding IABP care among Nurses" was rejected.

Correlation between scores of Knowledge and Practice regarding Care of Patient with IABP among Nurses.

In this present study, there was a positive correlation between the posttest knowledge and practice of (r=0.41) nurses significant at p<0.001 level. Hence the null hypothesis **H_O2** stating that there is no significant correlation between the posttest level of knowledge and practice of nurses on IABP care was rejected

Frequency and Percentage Distribution of Level of Acceptability on Capacity Building Programme regarding care of Patient with IABP among Nurses.

Study finding revealed that, majority of the Nurses reported that the capacity building programme to be highly acceptable regarding the approach of the researcher (95%), Administration of capacity building programme (90%) and about its effectiveness, (90%).

Association between the selected Demographic Variables and the Level of Knowledge before and after Capacity Building Programme regarding care of Patient with IABP among Nurses

In this study, there was a significant association between pretest level of knowledge regarding IABP care among nurses and gender ($\chi 2 = 3.94$) at p<0.05 level and there is no significant association between pretest and posttest level of knowledge and other demographic variables of Nurses such age, educational level, ICU experience and previous experience of IABP patient care. Hence the null hypothesis **$H_0$3** stating that "There will be no significant association between the selected demographic variables and

the pretest and posttest level of knowledge regarding IABP care nurses" was retained with regard to age, educational level, ICU experience and previous experience of IABP patient care except gender.

Association between the selected Demographic Variables and the Level of Practice before and after Capacity Building Programme regarding care of Patient with IABP among Nurses

The findings of the study revealed that there was no significant association between pretest and posttest level of practice regarding IABP care nurses and their demographic variables namely age, gender, educational level, years of ICU experience and previous experience of care of patient with IABP. Hence the null hypothesis **$H_0$4** stating that "There will be no significant association between the selected demographic variables and the level of practice regarding IABP care among nurses" was retained.

Conclusion

The findings of the present study revealed that capacity building programme regarding care of patient with IABP enhanced the knowledge and practice among nurses. It was a suitable method to educate and demonstrate the Immediate care of IABP patients. Interventions should focus on IABP care to prevent the complications of IABP patients, including the initial management of IABP care.

Implications

The findings of the study have implications for the different domains of nursing profession i.e. nursing practice, nursing education, nursing administration, and nursing research by assessing the effectiveness of capacity building programme on IABP care.

Nursing Practice

The nurse as a team leader can plan, organize and coordinate training program on IABP care among Nurses, which will be helpful for them Nurses to act promptly and to prevent the complications. Barriers to performing IABP care among Nurses are lack of knowledge and expertise in IABP care, fear of inflicting pain or discomfort on IABP patients and lack of competence to perform nursing intervention to prevent complications, I/O chart, pedal pulse, ACT level.

Nursing Education

The nurse educators should involve in teaching the students about importance of educating general public regarding capacity building programme on IABP care. The nurse educator should encourage the Nurses in different settings to attend training programme so that the practice of performing IABP care will be improved. Nursing curriculum needs to have specific educating the Nurses methods. The nurse educator can play a vital role in educating the general public regarding capacity building programme regarding care of patients with IABP.

Nursing Administration

The nurse administrator should take adequate steps with growing bodies in formulating policies and protocols in planning and organizing the educational sessions to create awareness among Nurses and to promote gain in knowledge regarding IABP care.

This type of recognition and achievement will encourage and sensitize the nurses to learn about care of patient with IABP.

Nursing Research

There is a need for extensive and intensive research in this area. The researcher found that the knowledge and practice is deficient among Nurses regarding IABP care. Hence the professionals and nursing personnel should conduct further studies on different aspects of IABP care in different settings.

Recommendations

The researcher recommends the following studies

- The same study can be conducted on larger samples for better generalization.
- The similar study could be replicated in different settings.
- Experimental studies to assess effectiveness of various other teaching strategies on IABP, can be conducted.

REFERENCES

Ades, P. A. (2011). Cardiac rehabilitation and secondary prevention of coronary heart disease. **New England Journal of Medicine**, *345*(12), 892-902.

American Heart Association, (2016).**care of patient with IABP**, Provider Manual. United States Of America: Integracolor, Ltd

Asmaa Aly Mahgoub1 , Aml Ismael AbdEl Hafez (2017). Effect of Implementing Intra-Aortic Balloon Pump Teaching Program on Critical Care Nurse's knowledge and Practice. **IOSR Journal of Nursing and Health Science** . 6(1) (Jan. - Feb. 2017). 54-62

Dyub, A. M., Whitlock, R. P., Abouzahr, L. L., &Cina, C. S. (2008). Preoperative intra-aortic balloon pump in patients undergoing coronary bypass surgery: a systematic review and meta-analysis. **Journal of cardiac surgery**, *23*(1), 79-86.

Elahi MM, Chetty GK, Kirke R, Azeem T, Hartshorne R, Spyt T (2009) Complications related to intra-aortic balloon pump in cardiac surgery: A decade later. **European Journal of Endovascular Surgery**. 29: 591–4

Engstrom, A. E., Vis, M. M., Vander Schaaf, R. J., Baan Jr, J., Koch, K. T., & Henriques, J. P. (2009). A systematic review and meta-analysis of intra-aortic balloon pump therapy in ST-elevation myocardial infarction should we change the guidelines. **European heart journal**, *30*(4), 459-468.

Fanning, N., Galvin, S., Parke, R., Gilroy, J., Bellomo, R., & McGuinness, S. (2016). A prospective study of the timing and accuracy of neutrophil gelatinase-associated lipocalin levels in predicting acute kidney injury in high-risk cardiac surgery patients. **Journal of cardiothoracic and vascular anesthesia**, *30*(1), 76-81.

Fukushima, A., Milner, K., Gupta, A., & D Lopaschuk, G. (2015). Myocardial energy substrate metabolism in heart failure: from pathways to therapeutic targets. **Current pharmaceutical design**, *21*(25), 3654-3664.

Gao, F., Zhou, Y. J., Zhu, X., Wang, Z. J., Yang, S. W., & Shen, H. (2011). C-reactive protein and the risk of contrast-induced acute kidney injury in patients undergoing percutaneous coronary intervention. **American journal of nephrology**, *34*(3), 203-210.

Hochman, J. S., Sleeper, L. A., Webb, J. G., Sanborn, T. A., White, H. D., Talley, J. D., & McKinlay, S. M. (1999). Early revascularization in acute myocardial infarction complicated by cardiogenic shock. **New England Journal of Medicine,** *341*(9), 625-634.

Kim, J. Y., Ramsay, J. G., Licina, M. G., & Mehta, A. R. (2012). Alternative Approaches to Cardiac Surgery with and without Cardiopulmonary Bypass**. A Practical Approach to Cardiac Anesthesia.**

Kocogullari, C. U., Emmiler, M., Ayva, E.,& Cekirdekct, A. (2008). IABP-Related vascular complications: Who is responsible, the patient, the surgeon or the sheath? Part I: Sheath-related complications**. Advances in therapy**, *25*(3), 225-230.

Lazzeri, C., Sori, A., Bernardo, P., Picariello, C., Gensini, G. F., & Valente, S. (2013). In-hospital refractory cardiac arrest treated with extracorporeal membrane oxygenation.a tertiary single center experience. **Acute cardiac care**, *15*(3), 47-51.

Lewis, P., & Courtney, M. (2016). Weaning Intraaortic Balloon Counterpulsation: the evidence. **British Journal of Cardiac Nursing**, *1*(8), 385-389.

Lewis,(2016). **Medical Surgical Nursing.(14th edition). Philadelphia.** Elseveir publications.1118-1222.

Maccioli, G. A., Lucas, W. J., & Norfleet, E. A. (2016). The Intra-Aortic Balloon Pump: a review. **Journal of cardiothoracic anesthesia**, *2*(3), 365-373.

Mahajan.B.K.(2014)**Methods in Biostatistics.**(8th edition).St.Louis: Jaypee Brothers Medical publishers,1-185.

Manohar, V. A., Levin, R. N., Karadolian, S. S., Usmani, A., Timmis, R. M., Dery, M. E., & Dixon, S. R. (2012). The Impact of Intra-Aortic Balloon Pump Weaning Protocols on In-Hospital Clinical Outcomes. **Journal of interventional cardiology,** *25*(2), 140-146.

Onorati, F., Santarpino, G., Rubino, A., Cristodoro, L., Scalas, C., &Renzulli, A. (2009). Intraoperative bypass graft flow in intra-aortic balloon pump supported patients: Differences in arterial and venous sequential conduits. **The Journal of thoracic and cardiovascular surgery,** *138*(1), 54-61.

Perin, E. C., Sanz-Ruiz, R., Sanchez, P. L., Lasso, J., Pérez-Cano, R., Alonso-Farto, J. C.,. & Kastrup, J. (2014). Adipose-derived regenerative cells in patients with ischemic cardiomyopathy. **American heart journal**, *168*(1), 88-95.

Polit .D.F. ,and Beck, C.T. (2016) **Nursing Research, Generating and Assessing Evidence for Nursing Practice.** (8th edition)New Delhi: Lippincott.

Prondzinsky, R., Lemm, H., Swyter, M., Wegener, N., Unverzagt, S., Carter, J. M., & Schmidt, H. (2010). Intra-aortic balloon counterpulsation in patients with acute myocardial infarction complicated by cardiogenic shock: the prospective, randomized IABP SHOCK Trial for attenuation of multiorgan dysfunction syndrome. **Critical Care Medicine**, *38*(1), 152-160.

Qiu, Z., Chen, X., Xu, M., Jiang, Y., Xiao, L., Liu, L., & Wang, L. (2009). Evaluation of preoperative intra-aortic balloon pump in coronary patients with severe left ventricular dysfunction undergoing OPCAB surgery: early and mid-term outcomes. **Journal of Cardiothoracic Surgery**, *4*(1), 39.Sjauw, K. D.,

Rajni Thapa and Gita Neupane (2018). Intra Aortic Ballon Pump Implantation Therapy. International Journal of Recent Scientific Research 9(|2), 24459-24462.

Rao ,S., & Richard ,J. (April 2009). **Introduction to Biostatistics and Research Methods** (6th edition). New Delhi : Asoke .,K. Ghosh Publishers, 256-268.

Roger, V. L., Go, A. S., Lloyd-Jones, D. M., Adams, R. J., Berry, J. D., Brown, T. M., & Fox, C. S. (2011). Heart disease and stroke statistics—2011 update: a report from the American Heart Association. **Circulation,** *123*(4), e18.

Rosamond, W., Flegal, K., Friday, G., Furie, K., Go, A., Greenlund, K., & Kittner, S. (2017). Heart disease and stroke statistics—2007 update: a report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. **Circulation**, *115*(5), e69-e171.

Rushdy, T. I., Youssef, W., & Elfeky, H. (2015). Nurses' knowledge and practice regarding care of patients connected to intra-aortic balloon pump at Cairo university hospitals. **Egyptian Journal of Nursing**, *10*(1).

Ryan, T. J., Anderson, J. L., Antman, E. M., Braniff, B. A., Brooks, N. H., Califf, R. M., & Russell, R. O. (2006). ACC/AHA guidelines for the management of patients with acute myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines **Journal of the American College of Cardiology**, *28*(5), 1328-1419.

Safiuddin, M. (2012). The Intra-aortic Balloon Pump (IABP)-An Essential Component of Modern Cardiac Care. **University Heart Journal**, *8*(1), 1.

Serraino, G. F., Marsico, R., Musolino, G., Ventura, V., Gulletta, E., Santè, P., & Renzulli, A. (2012). Pulsatile cardiopulmonary bypass with intra-aortic balloon pump improves organ function and reduces endothelial activation. **Circulation Journal**, *76*(5), 1121-1129.

Stevenson, A. (Ed.). (2016). **Oxford dictionary of English**. Oxford University Press, USA.

Suzanne . C., Brenda, G., Janice (2012). **Medical Surgical Nursing.** (12th edition). Lippincott Williams & Wilkins. 1117-1227

Turi, Z. G., & Topalian, S. K. (2013). Intra-aortic Balloon Counterpulsation. **Critical Care Medicine E-Book**: Principles of Diagnosis and Management in the Adult, 90-95

Unverzagt, S., Machemer, M. T., Solms, A., Thiele, H., Burkhoff, D., Seyfarth, M., & Werdan, K. (2011). Intra-aortic balloon pump counterpulsation (IABP) for myocardial infarction complicated by cardiogenic shock. **Cochrane Database Systematic Review**, *7*.

Velazquez, E. J., Lee, K. L., Deja, M. A., Jain, A., Sopko, G., Marchenko, A., & Yii, M. (2011). Coronary artery bypass surgery in patients with left ventricular dysfunction. **New England Journal of Medicine,** *364*(17), 1607-1616.

Wan Y-D, Sun T-W, Kan Q-C, Guan F-X, Liu Z-Q, Zhang S-G (2016) The Effects of Intra-Aortic Balloon Pumps on Mortality in Patients Undergoing High-Risk Coronary Revascularization: A Meta-Analysis of Randomized Controlled Trials of Coronary Artery Bypass Grafting and Stenting 11(1): e0147291.

World Health Organization (2013), **"care of patient with IABP",** retrieved 11th November 2015.

APPENDIX I

LETTER SEEKING PERMISSION TO CONDUCT THE STUDY

Apollo College of Nursing
(A unit of Apollo Hospitals Educational Trust)
(Recognised by the Indian Nursing Council and Affiliated to the Tamil Nadu Dr. M.G.R. Medical University, Chennai)

CO/0361/17 **27.11.2017**

To

Dr.C.Paul Dilip Kumar
Asst.Director Medical Services
Apollo Speciality Hospital
Vanagaram
Chennai-600095

Respected Sir,

Sub:-To request permission for Research Study.

Greetings! As a part of the curriculum requirement of our M.Sc (N) student Ms. Neelavathi .D has selected the following title for her research study.

"**An Experimental Study to Assess the Effectiveness of Capacity Building Program regarding IABP(Intra Aortic Balloon Pump) Bundle Care upon the Knowledge and Practice among Nurses in the cardiac units at selected hospitals Tamil Nadu.**".

So, I kindly request your goodselves to permit her to conduct study in your esteemed hospital.

Thanking You,

Dr. LATHA VENKATESAN
PRINCIPAL

Discussed with Dr-Raja

Dr. C. PAUL DILIP KUMAR
Asst. Director Medical Services
APOLLO SPECIALITY HOSPITALS
Vanagaram, Chennai-600 095

Regd. Office : 21, Greams Lane Off, Greams Road, Chennai - 600 006. Ph. : +91-44-2829 3333, 2829 0200 Website : www.apollohospitalseducation.com
Unit Office : Vanagaram to Ambattur Main Road, Ayanambakkam, Chennai - 600 095. Phone : 044 - 2653 4387 Fax : 044 - 2653 4923 / 2653 4386

Apollo Hospitals CHENNAI
Emergency Service Dial 1066

Apollo College of Nursing

(A unit of Apollo Hospitals Educational Trust)

(Recognised by the Indian Nursing Council and Affiliated to the Tamil Nadu Dr. M.G.R. Medical University, Chennai)

CO/0328/17 20.11.2017

To

Dr. M. Muralidharan
Director Medical Education
Southern Region
Apollo Hospitals
Chennai -600006

Dear Sadya,
Conya help of
Student please

Dr. MURALIDHARAN. M
MB.,MRCS(EDIN),FRCS(GLAS).,
FMAS(LAPROSCOPIC SURGERY
DIRECTOR MEDICAL EDUCATION
SOUTHERN REGION
APOLLO HOSPITALS, CHENNAI.

Respected Sir,

Sub:-To request permission for research study.

Greetings! As a part of the curriculum requirement of our M.Sc (N) student Ms. Neelavathi .D has selected the following title for her research study.

"An Experimental Study to Assess the Effectiveness of Capacity Building Program regarding IABP(Intra Aortic Balloon Pump) Bundle Care upon the Knowledge and Practice among Nurses in the cardiac units at selected hospitals Tamil Nadu.".

So, I kindly request your goodselves to permit her to conduct study in your esteemed hospital.

Thanking You,

Dr. LATHA VENKATESAN
PRINCIPAL

Regd. Office : 21, Greams Lane Off, Greams Road, Chennai - 600 006. Ph. : +91-44-2829 3333, 2829 0200 Website : www.apollohospitalseducation.com
Unit Office : Vanagaram to Ambattur Main Road, Ayanambakkam, Chennai - 600 095. Phone : 044 - 2653 4387 Fax : 044 - 2653 4923 / 2653 4386

APPENDIX II

ETHICS COMMITTEE LETTER

Institutional Ethics Committee - Clinical Studies
Apollo Hospitals, Chennai
Reg. No. ECR/37/Inst/TN/2013/RR-16

7 Dec 2017

To,
Ms. Neelavathi.D,
First year, M.Sc. (Nursing),
Department of Medical Surgical Nursing,
Apollo College of Nursing, Chennai.

Ref: An Experimental study to assess the Effectiveness of Capacity Building Program Regarding IABP (Intra Aortic Balloon Pump) Bundle Care upon Knowledge and Practice among Nurses in the Cardiac units at selected hospitals Tamil Nadu.

Sub: **Final Full Board** (Subsequent to your letters dated 08 Nov 2017.

Dear Ms. Neelavathi D,

The Institutional Ethics Committee-Clinical Studies has received the following document submitted by you related to the conduct of the above-referenced study -

- Project Proposal

The Institutional Ethics Committee-Clinical Studies reviewed and discussed the project proposal documents submitted by you at a meeting held on 1st Dec 2017.

The following Institutional Ethics Committee – Clinical Studies members were present at the meeting held on 1st Dec 2017 at 11am at New Conference Hall, Main Block, 5th Floor, Apollo Main Hospital, Greams Road, Chennai – 600006.

S. No	Name	M/F	Qualification	Affiliated Y/N	Designation	Position in the Committee
1.	Dr. Manjula Datta	F	MBBS,D.C.H, M.D. (Pediatrics), M.Sc. (Design Measurement & Evaluation), FRCP (Edin)	No	Independent Research Consultant	Chairperson
2.	Dr. Rema Menon	F	MBBS	Yes	HOD, Blood Bank Transfusion Services	Member Secretary (Physician)
3.	Dr. P. Nalini Rao	F	MA, M. Phil, PGDHRM, Ph.D	No	Social Worker	Social Scientist
4.	Dr. Pradeep Kumar	M	MBBS, M.D. (Pharmacology)	Yes	Pharmacologist	Pharmacologist

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E-mail: ecapollochennai@gmail.com

5.	Dr. K. Sathyamurthi	M	M.A. (Social Work), PGDHRM, Ph.D	No	Head Department of Social Work	Social Scientist
6.	Dr. Nirumal Rakkesh*	M	M.B.B.S, M.D. (Pharmacology)	Yes	Pharmacologist	Pharmacologist
7.	Ms. Maimoona Badsha	F	B.A,B.L	No	Lawyer	Lawyer
8.	Mrs.Malathy Chandrasekhar	F	B.A. (Hindi)	No	Home Based Teacher	Layperson
9.	Dr. Rathna Devi	F	MBBS, DMRT	Yes	Sr. Consultant Radiation Oncologist	Clinician

**Alternate Member*

The Institutional Ethics Committee-Clinical Studies reviewed the proposal, its methodology and design of the study. The proposed thesis work is approved in the presented form without any modifications.

The Institutional Ethics Committee-Clinical Studies review and approval of the report is only to meet their academic requirement and will not amount to any approval of the conclusion / recommendations as conclusive, deserving adoption and implementations, in any form, in any health care institution.

The Institutional Ethics Committee-Clinical Studies is constituted and works as per ICH-GCP, ICMR and revised Schedule Y guidelines.

Regards,

Date: 07/12/17

Dr. Rema Menon,
Member Secretary,
Institutional Ethics Committee-Clinical Studies,
Apollo Hospitals,
Chennai.

MEMBER SECRETARY
INSTITUTIONAL ETHICS COMMITTEE CLINICAL STUDIES
APOLLO HOSPITALS, AHEL
CHENNAI, TAMILNADU.

APPENDIX III

LETTER SEEKING PERMISSION FOR CONTENT VALIDITY

From
Ms. Neelavathi.D
M.Sc., (Nursing) II Year,
Apollo College of Nursing,
Chennai-95.

To
Forwarded Through
Dr. Latha Venkatesan,
Principal,
Apollo College of Nursing.

sub: Requesting for opinions Requesting for opinions and suggestions of experts for establishing content validity for research tool.

Respected Madam,

Greetings!! As a part of the curriculum requirement the following research title is selected for them study.

"A Pre Experimental Study to Assess the Effectiveness of Capacity Building Program regarding Care of patient with Intra-Aortic Balloon Pump (IABP) upon the Level of Knowledge and Practice among Nurses at selected hospitals, chennai. "

I will be privileged to have your valuable suggestions with regards to the establishment of content validity of the research tool. I kindly request you to validate my research tool and give suggestions about the same. I would be highly obliged and remain thankful for your great help for validating my tool.

Thanking You.

Yours sincerely
Neelavathi

APPENDIX IV

PLAGIARISM ORIGINALITY REPORT

Plagiarism Detector – Originality Report

Plagiarism Detector project: [http:// plagiarism-detector.com] Application core version : 622

Originality Report Details

Generation Date and Time:	24/07/2018 02:10:20 PM
Document Name:	NEELAVATHI.D THESIS.docx
Document Location:	C:\Documents and Settings\universe computers\Desktop\ NEELAVATHI.D THESIS.docx
Document Words count:	21598

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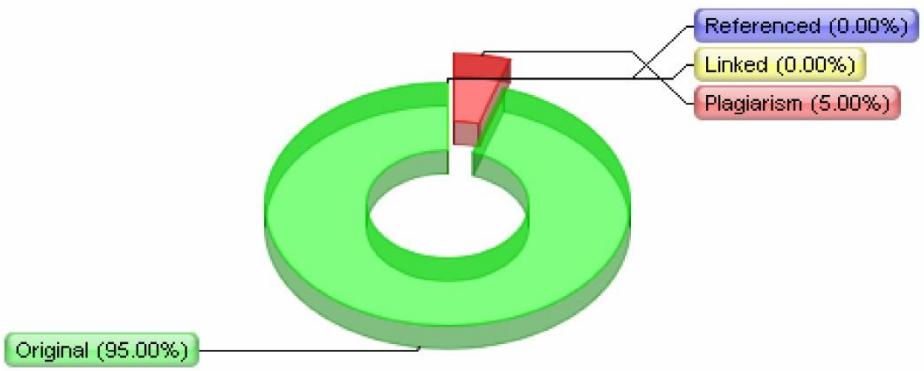
Plagiarism Detection Chart

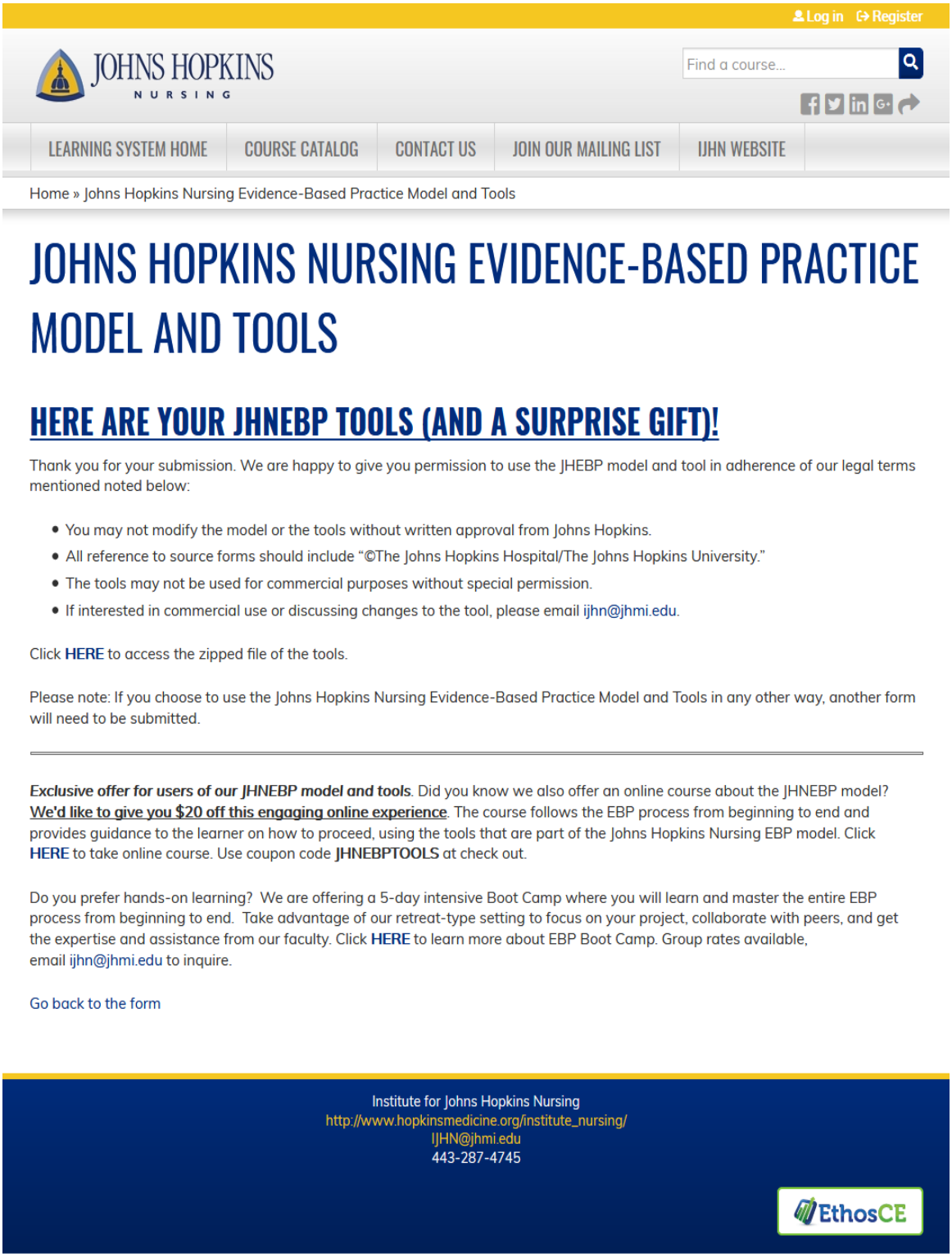


Referenced - 0% / Linked - 0%

Original – 95% / Plagiarism - 5%

APPENDIX V

EVIDENCE - BASED PRACTICE MODEL AND TOOLS



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Home » Johns Hopkins Nursing Evidence-Based Practice Model and Tools

JOHNS HOPKINS NURSING EVIDENCE-BASED PRACTICE MODEL AND TOOLS

HERE ARE YOUR JHNEBP TOOLS (AND A SURPRISE GIFT)!

Thank you for your submission. We are happy to give you permission to use the JHEBP model and tool in adherence of our legal terms mentioned noted below:

- You may not modify the model or the tools without written approval from Johns Hopkins.
- All reference to source forms should include "©The Johns Hopkins Hospital/The Johns Hopkins University."
- The tools may not be used for commercial purposes without special permission.
- If interested in commercial use or discussing changes to the tool, please email ijhn@jhmi.edu.

Click **HERE** to access the zipped file of the tools.

Please note: If you choose to use the Johns Hopkins Nursing Evidence-Based Practice Model and Tools in any other way, another form will need to be submitted.

Exclusive offer for users of our JHNEBP model and tools. Did you know we also offer an online course about the JHNEBP model? **We'd like to give you $20 off this engaging online experience**. The course follows the EBP process from beginning to end and provides guidance to the learner on how to proceed, using the tools that are part of the Johns Hopkins Nursing EBP model. Click **HERE** to take online course. Use coupon code **JHNEBPTOOLS** at check out.

Do you prefer hands-on learning? We are offering a 5-day intensive Boot Camp where you will learn and master the entire EBP process from beginning to end. Take advantage of our retreat-type setting to focus on your project, collaborate with peers, and get the expertise and assistance from our faculty. Click **HERE** to learn more about EBP Boot Camp. Group rates available, email ijhn@jhmi.edu to inquire.

Go back to the form

Institute for Johns Hopkins Nursing
http://www.hopkinsmedicine.org/institute_nursing/
IJHN@jhmi.edu
443-287-4745

EthosCE

APPENDIX VI

CERTIFICATE FOR CONTENT VALIDITY

TO WHOM SO EVER IT MAY CONCERN

This is to certify that tools and content for research study has been developed by M.sc (Nursing) student of Apollo college of Nursing for her dissertation on **"A pre Experimental Study to Assess Effectiveness of Capacity Building programme Regarding care of patient with IABP upon level of knowledge and practice among Nurses at selected hospitals, Chennai".**

Signature of the Expert

Name and designation

APPENDIX VII

LIST OF EXPERTS FOR CONTENT VALIDITY

1. Dr. Latha Venkatesan, M.Sc(N).,M.Phil (N).,Ph.D(N).,MBA(HM)., Ph.D.(HDFS).,

Principal and Professor,

Apollo College of Nursing,

Chennai-600 095

2. Dr. Lizy Sonia .A, M.sc (N).,Ph.D (N).,

Vice Prinicipal and HOD of Medical Surgical Nursing,

Apollo College of Nursing,

Chennai-600 095

3. Dr. K. Vijayalakshmi, M.Sc (N) ., M.A. Psychology., MBA., Ph.D(N).,

Head of Department, Mental Health Nursing,

Apollo College of Nursing,

Chennai-600 095

4. Dr.N.Salgunan ,M.S,M.C.H.,

Consultant cardio thoracic surgeon

Apollo main Hospital ,

Chennai-600 095

5. Prof. Jaslina Gnanarani M.Sc. (N)., M.Sc (Psychology).,

Reader Dept of Medical Surgical Nursing,

Apollo College of Nursing,

Chennai-600 095

6. Mrs.Sasikalal .D, M.Sc. (N).,

Reader Dept of Medical Surgical Nursing,

Apollo College of Nursing

Chennai-600 095

7. Mrs.Kanchana.G. M.Sc. (N)., M.Sc (Psychology).,

Reader Dept of Medical surgical Nursing

Apollo College of Nursing,

Chennai-600 095

8. Mrs.A.Merlin M.Sc.(N).,

HOD Dept of Pediatric Nursing,

Apollo college of Nursing,

Chennai – 600 095

APPENDIX VIII

LETTER SEEKING CONSENT FROM PARTICIPANTS

Dear Participant /bystander,

I am Neelavathi.D, M.Sc. Nursing II year student of Apollo College of Nursing, Chennai. As a part of my study, a research on I have selected a Research Project on "**A Pre Experimental Study to assess the Effectiveness of Capacity Building Programme regarding care of patient with IABP upon knowledge and practice among Nurses at Selected Hospitals, Chennai"**

I hereby seek your consent and co-operation to participate in the study. Please be frank and honest in your response. The information collected will be kept confidential and anonymity will be maintained.

Signature of the Researcher

I ……Hereby consent to participate inthis study

Place :

Date :

Signature of the participant / bystander

APPENDIX IX

CERTIFICATE FOR ENGLISH EDITING

This is to certify that the dissertation **"A Preexperimental Study to Assess the Effectiveness of Capacity Building Programme regarding IABP care upon Knowledge and Practice among Nurses at selected Hospitals, Chennai"** by Ms.Neelavathi M. Sc (N) II year student, Apollo College of Nursing was edited for English language appropriateness.

Signature

I/c S. Nyanadur B.T. Asst
The Govt. Hr. Sec. School
Pattabiram. (Thandurai)
Chennai 600 072

APPENDIX X

DEMOGRAPHIC VARIABLE PROFORMA OF NURSES

Purpose

This proforma is used by the researcher to collect information on demographic variables for nurses such as age, gender, educational status, years of ICU experience, previous experience taking care of patient with IABP.

Instruction

The researcher was collect the information by interviewing the participants and by referring the Read the following items carefully and select one correct response by placing appropriate tick mark on the space provided. Please be frank in answering. It will be kept confidential and anonymity was maintained.

Identification data:

Sample no

1. **Age in years**

1.1 .21 to 25 ☐

1.2. 26 to 30 ☐

1.2 .31 to 35 ☐

1.3 .Above 35 ☐

2. **Gender**

2.1 Male ☐

2.2 Female ☐

3. Educational status

3.1GNM ☐

3.2 B.Sc nursing ☐

3.3Post Basic B.Sc Nursing ☐

3.4M.Sc Nursing ☐

4.Years of experience in Intensive care unit

4.1 ≤ 2 years ☐

4.2 3 to 5 years ☐

4.3 6 to 10 years ☐

4.4 Above 10 years ☐

5. Previous experience of Nurses in taking care of patient with IABP?

5.1 Yes [specify the number of patient and days of care] ☐

5.2 No ☐

APPENDIX XI

STRUCTURED QUESTIONNAIRE TO ASSESS KNOWLEDGE REGARDING CARE OF PATIENT WITH IABP

Purpose

The structured knowledge questionnaire was collected information of nurses regarding the knowledge and practice on care of IABP patients.

Instructions:

This structured interview schedule consists of multiple choice questions. Read the questions and answer given. Place a (√) tick mark against the right answer for each question. Please be frank in your response. The information collected was kept confidential and anonymity was maintained.

1. **Which is called the Natural Pace maker of heart?**

   1.1 Purkinjie fibre ☐

   1.2 Right Atrium ☐

   1.3 AV node ☐

   1.4 SA node ☐

2. **Whatis after load?**

   2.1 Dilated State of the ventricles ☐

   2.2 Vascular resistance ☐

   2.3 Volume arriving in the left ventricle ☐

   2.4 Amount of pressure the left ventricle must work against to pump blood into the systemic circulation ☐

3. **What is the normal level of platelet?**

3.1 150,000 – 450,000 / mol

3.3 500,000 – 600 ,000 /mol

3.3 100,000 – 150,000 / mol

3.4 Below 150,000 / mol

4. **What is the normal ACT (Activated clotting time) level?**

4.1 110 sec

4.2 140 sec

4.3 130 sec

4.4 150 sec

5. **What is the normal PAP (pulmonary artery pressure) value?**

5.1 12 – 14 mm hg

5.2 3-8mm hg

5.3 5-12mm hg

5.4 15-30mm hg

6. **What is the normal range of PAWP (Pulmonary artery wedge pressure) ?**

6.1 18 - 20 mm hg

6.2 12 - 14 mm hg

6.3 8 - 20mm hg

6.4 4 - 6 mm hg

7. **What is the Expansion of IABP?**

7.1 Intra-aortic balloon pump

7.2 intra-aortic blood pressures

7.3 Intra-arterial balloon pump ☐

7.4 Intra-arterial blood pressure ☐

8. Which part of the circulatory rhythm is support by IABP device ?

8.1 Left ventricle ☐

8.2 Right ventricle ☐

8.3 Right Atrium ☐

8.4 Left Atrium ☐

9. When does Inflation of the IABP occur?

9.1 Diastole of right ventricular ☐

9.2 Diastole of left ventricular ☐

9 .3 Systoleof left ventricular ☐

9.4 Systole of right ventricular ☐

10. Which one of the following is not a Physiological Effects after inserting IABP?

10.1 Increases coronary artery perfusion ☐

10.2 Increases myocardial oxygen supply ☐

10.3 Increases Blood Pressure ☐

10.4 All the above ☐

10. What is the insertion site of IABP?

11.1 Femoral artery ☐

11.2 Radial artery ☐

11.3 Carotid artery ☐

11.4 Brachial artery ☐

12. **Which one of the following is the indication of IABP?**

12.1 EF above 60 %

12.2 EF below 30 %

12.3 Hypertension

12.4 Pulmonary edema

13. Which is the contra indication for IABP?

13.1 Aortic aneurysm

13.2 Hypotension

13.3 MI

13.4 Cardiogenic shock

14. Why is chest X- ray taken for IABP patients?

14.1 Position of catheter site

14.2 Identify pulmonary edema

14.3 Pleural effusion

14.4 Pneumothorax

15. Why is Helium gas used in IABP?

15.1 Cheaper and safe for patient even at the time of break

15.2 Higher density and therefore a better rapid diffusion coefficient

15.3 Lower density and therefore a better rapid diffusion coefficient

15.4 Higher density and better diffusion rate

16. How often is pedal pulse checked?

16.1 4 hourly

16.2 12 hourly

16.3 24 hourly ☐

16.4 8 hourly ☐

17. What is the normal level of augmentation pressure?

17.1 130 to 150 mm of Hg ☐

17.2 Below 100 mm of Hg ☐

17.3 100 to 110 mm of Hg ☐

17.4 150 to 200 mm of Hg ☐

18. What is the normal range of urine output per Hour?

18.1 Below 30 ml ☐

18.2 Above 30 ml ☐

18.3 Above 100 ml ☐

18.4 Above 200 ml ☐

19. Where does the IABP catheter tip lie?

19.1 Distal to the Right Subclavian artery and proximal to the renal arteries ☐

19.2 Distal to the Left Subclavian artery and proximal to the renal arteries ☐

19.3 Proximal to the Right Subclavian artery and proximal to the renal arteries ☐

19.4 Proximal to the Left Subclavian artery and proximal to the renal arteries ☐

20. Why you have to assess the IABP catheter sites?

20.1 Sign of hematoma ☐

20.2 Sign of Infection ☐

20.3 For catheter placement ☐

20.4 All the above ☐

21. **What is the indication for starting heparin infusion?**

21.1 ACT less than 130 sec

21.2 ACT more than 200 sec

21.3 ACT 131 - 160 sec

21.4 ACT 250 - 300 sec

22. **What is the most common rhythm change among patients with IABP?**

22.1 Premature ventricular contraction

22.2 Atrial fibrillation

22.3 Tachycardia

22.4 Ventricular fibrillation

23. How you will prevent the blockof IABPcatheter?

23.1 4hourly flushing

23.2 8hourly flushing

23.3 24 Hours once flushing

23.4 48 Hours once flushing

24. What is the normalrange of CVP pressure?

24.1 10 – 12 mm hg

24.2 18 – 20 mm hg

24.3 1 2 – 14 mm hg

24.4 2 – 3 mm hg

25. Which one the following indicates for helium leak?

25.1 Square or Rounded Plateau pressure

25.2 Post-removal assessment

25.4 Absence of balloon waveform.

25.4 No trace in waveforms

26. How much units does 1 ml of heparin contain?

26.1 5000 units

26.2 2500 units

26.3 2000 units

26.4 1500 units

27.What is the normal level of (PT INR & PTT)?

27.1 Below 1. 1

27.2 Above 1.1

27.3 2 – 3

27.4 3- 4

28. Which of following is a severe complicatios of IABP?

28.1 Heparin inducted thrombocytopenia

28.2 Hypotension

28.3 EF 30 %

28.4 Diabetes mellitus

29. Which one of the following is the correct placement of catheter tip in x – ray ?

29.1 Between 3^{rd} and 4^{th} Intercostal Space

29.2 Above first Intercostal Space

29.3 Between 2^{nd} and 3^{rd} Intercostal Space.

29.4 Between 1^{st} and 2^{nd} Intercostal Space

30. What is the duration of pressure at puncture site after removal of IABP catheter?

30.1 15 to 30 mins ☐

30.2 1 to 2 hours ☐

30.3 2 to 4 hours ☐

30.4 5 to 10 mins ☐

ANSWER KEY FOR STRUCTURED KNOWLEDGE QUESTIONNAIRE

Question No	Answer	Question No	Answer	Question No	Answer
1	1.3	11	11.1	21	21.1
2	2.4	12	12.4	22	22.4
3	3.1	13	13.4	23	23.1
4	4.2	14	14.1	24	24.1
5	5.4	15	15.3	25	25.2
6	6.1	16	16.2	26	26.3
7	7.2	17	17.3	27	27.3
8	8.1	18	18.3	28	28.2
9	9.2	19	19.3	29	29.1
10	10.1	20	20.4	30	30.1

Scoring Interpretation

Score	**Percentage**	**Interpretation**
Less than 15	Less than 50%	Inadequate knowledge
16-22	51-75%	Moderately adequate knowledge
23-30	76-100%	Adequate knowledge

APPENDIX XII

PRACTICE OBSERVATIONAL CHECKLIST ON CARE OF PATIENT WITH IABP

Purpose:

The skill observation check list is used by the investigator to assess the level of skill among Nurses.

Instruction:

The checklist consists of 20 items. The scoring ranges from performed to not performed.

S.No	Steps	Performed (2)	Partially performed (1)	Not performed
1.	Monitor temperature, pulse, systolic, diastolic and mean hourly			
2.	Monitor radial and pedal pulse hourly			
3.	Check urine output			
4.	Check the backflow 4th hourly			
5.	Check the rhythm changes			
6.	Monitor the Insertion sight			
7.	Check the Augmentation pressure			
8.	Manual flushing 4th hourly			
9.	Check the pulse rate and blood pressure			
10.	Check the neurological assessment			
11.	Maintain therapeutic and coagulation			
12.	Monitor renal function daily			
13.	Check IAABP entry site hourly and observe any bleeding and /or haematoma formation			
14.	Monitor pain score hourly and ensure adequate pain control			
15.	Use the skin bundle and turn patient every 2 to 4 hours			

16.	Observe pressure areas			
17.	Administer oxygen supply as required			
18.	Observe and record IABP wave form			
19.	Provide ideal position			
20.	Monitor bowels and give laxatives as required			

Scoring key:

Performed: 2

Partially performed: 1

Not performed: 0

Scoring interpretation:

Score	**Percentage**	**Interpretation**
Less than 10	Less than 25%	Poor
11-20	26-50%	Good
21-30	51-75%	Very good
31-40	76-100%	Excellent

APPENDIX XIII

RATING SCALE ON LEVEL OF ACCEPTABILITY OF CAPACITY BUILDING PROGRAMME REGARDING CARE OF PATIENT WITH IABP

S.no	Items	Question no	Percentage
1	Characteristics of researcher	1,3,6,7	40%
2	Multimodal package administration	2,4,5,8	40%
3	Effectiveness of multimodal package	9,10`	20%

This tool is developed by a Investigator

Purpose

The rating scale is used by the investigator to assess the level of acceptability among experimental group of Nurses and its effectiveness.

Instruction:

The rating scale consists of 10 items. Kindly read and give yours responses freely and frankly and the responses will be confidential. The responses ranges from highly satisfied to highly dissatisfied.

S. NO	ITEMS	Highly satisfied (4)	Satisfied (3)	Dissatisfied (2)	Highly dissatisfied (1)
1	Are you satisfied with the prior information about the programme given by the researcher?				
2	Are you satisfied with the topic selected for capacity building program?				
3	Are you satisfied with the explanation regarding IABP bundle care by the researcher?				
4	Are you satisfied with the method of explanation and demonstration and video about IABP bundle care?				
5	Are you satisfied with the power point presentation content regarding IABP bundle care?				
6	Are you satisfied with the skill of the researcher while explaining and demonstrating steps on IABP bundle care?				
7	Are you satisfied with the method of evaluation by the researcher?				
8	Are you satisfied with the duration of the programme?				
9	Are you satisfied with the politeness of the researcher?				
10	Are you satisfied with the effectiveness of the programme?				

Scoring key:

Highly satisfied: 4

Satisfied: 3

Dissatisfied: 2

Highly dissatisfied: 1

Scoring Interpretation:

Score	Percentage	Interpretation
>15	Less than 25%	Highly dissatisfied
15-30	25-50%	Dissatisfied
31-45	51-75%	Satisfied
46-60	76-100%	Highly satisfied

APPENDIX XIV

LESSON PLAN

CONTENT OF CAPACITY BUILDING PROGRAMME REGARDING CARE OF PATIENT WITH IABP

TOPIC	:	CAPACITY BUILDING PROGRAMME
GROUP	:	NURSES
PLACE	:	APOLLO MAIN HOSPITAL, APOLLO SPECALITY HOSPITAL, CHENNAI
DURATION	:	4 HOURS
METHOD OF TEACHING	:	LECTURE CUM DEMONSTRATION
MEDIA OF TEACHING	:	POWER POINT PRESENTATION, DEMONSTRATION,
EDUCATOR	:	NEELVATHI.D
		II YEAR MSC (N) STUDENT, APOLLO COLLEGE OF NURSING CHENNAI

GENERAL OBJECTIVE

At the end of the session, the nurses will gain adequate knowledge regarding capacity building programme and apply the knowledge care of patient.

SPECIFIC OBJECTIVES

At the end of the session the Traffic Police will be able to

- outline regarding care of patient with IABP
- narrate the objectives of capacity building programme
- define IABP
- list down the indication of IABP
- list down the contraindications of IABP
- generalize the mechanisms of IABP
- enlist the signs and symptoms of IABP
- explain the capacity building programme of care of patient with IABP
    - What is an intra-aortic balloon pump?
    - Careof patient with before insertion of IABP.
    - Care of patient with during insertion of IABP.
    - Care of patient with after insertion of IABP.
    - nurses responsibility to taking care of patient
    - what is balloon weaning
    - emphasize about
    - describe the
    - point out the complications IABP

S. No	Time	Specific Objectives	Content	Teaching methods	Evaluation
1	10 min	Outline regarding capacity building programme	**Introduction** Its life saving procedure ,the first publication of intra aortic balloon pump is counter pulsation appeared in the American heart journal of may 1962 -1963 by Moulopoulos,s, topaz The balloons were then developed for commercial use between 1967and 1969 heart surgery by William Rassman, M.D at cornell medical centre . Patient cause of death in the world and the last cardiac disease report of India in 2014 showed how about 75,000 deaths, which is 54% of the total for myocardial infarction inIndia, were in the age group of 50 and 65 years. Then prehospital care like IABP care is necessary to save the patient life of cardiac patients. The care of patient with IABP ,nursing action ,nursing responsibility taking care of patient with IABP taken to save the life , before and during ,after insertion of IABP and to reduce the complications of IABP patients .Nurses have a vital role in delivering the initial care to the IABP patients .	Lecture cum discussion	What do you mean by IABP?

2	2 min	Narrate the objectives of capacity building programme	**Objectives of First Aid** ➢ To preserve life ➢ To prevent the complications from worsening ➢ To promote recovery ➢ To restore and maintain vital functions ➢ To early discharge patients	Lecture cum discussion	What are all the objectives of IABP care ?
3	2 min	Defines IABP	**Definition** The intra-aortic balloon pump(IABP) is defined as mechanical device that increases myocardial oxygen perfusion while at the same time increasing cardiac output. **INTRA AOTIC BALLOON PUMP (IABP)** The IABP is inserted percutaneous through the femoral artery and positioned in the descending thoracic aorta. The catheter tip lies distal to the left subclavian artery and proximal to the renal arteries. On the chest X-ray, the tip should be visible between the 2nd and 3rdintercostal space. The size of the IABP is dependent on patient's height to prevent occlusion of the renal and subclavian arteries. Inflation and deflation of the balloon catheter is timed to the cardiac cycle. The	Lecture cum discussion	Define IABP

			balloon is connected to be console that regulates the inflation or deflation of the balloon with the passage of helium .inflation of IABP occurs just after the closure of the aortic valve causing an increase in diastolic arterial pressure an d an increase in cardiac output. **WHAT IS HELIUM?** Helium is used to inflated the balloon as it is easily dissolved in blood and prevents the risk of air embolic if the catheter ruptures .when a patient is on an intra-aortic balloon pump the nurses should expect to see the waveform when balloon assisted ,the diastolic pressure should be always be highest pressure recorded on the waveform. This will ensure that the coronary arteries receive the maximum bloodflow.the balloon assisted systolic pressure should be lower than the patients non-assisted ,systolic pressure due to the reduction in after load. **Iabp Triggering** ; 1. **ECG Mode** ; using the r wave on the ecg 2. **Pressure** ; using the artery pressure waveform ,in regular rhythm ,the pressure trigger mode is not recommended 3. **Pacer V** ; (ventricular) AV (arterioventricalar); uses		

			ventricular spike to trigger an event ,is not an appropriate trigger for demand pacing 4. **Pacer A** (atrial) ;used when the patient has an atrial pacemaker .in this mode the R waveform on the ECG is the trigger ,the atrial pacer spikes are enanchance and rejected .never used for patients who have a ventricular pacemaker. 5. **Internal ;** Allows a synchronous trigger set at 80 beats/min. the internal mode should never be used if a patient is generating a cardiac output.		
4	5min	List down the indications of IABP	**Indications of IABP** • Cardiogenic shock • Pre shock syndrome • Septic shock • Cardiac confusion • Unstable angina • Myocardial infraction • Severe LV dysfunction • Ventricular arrhythmias • Left ventricular failure • Cardiomyopathy	Lecture cum discussion	What are all the indications of IABP

			• Thrombolytic therapy • Low cardiac output syndrome • Myocarditis • Cardiac transplantation • Weaning from cardio pulmonary bypass • Cardio pulmonary resuscitation • During general anesthesia		
5	5 min	list down the contraindications of IABP	**Contra indications of IABP** • Severe aortic insufficiency • Aortic aneurysm • Limb ischemia • Thrombo embolism • Abdominal aortic aneurysm • Thrombocytopenia • Severe atherosclerosis • End stage terminal disease • Aortic dissections • Severe stenosis of distal aorta • Aortic regurgitation • Uncontrolled coagulopathy • Peripheral vascular disease	Lecture cum discussion	

			• Left ventricular outflow obstruction		
6	10 min	Generalize the mechanisms of IABP	**Mechanisms of IABP** • Its controlled mechanism inflates the balloon with helium from a cylinder during diastole ,usually linked to either an electrocardiogram ((ECG) or pressure transducer at the distal tip of the catheter ,some IABPs ,such asynchronous counter pulsation at a set rate ,through this setting is rarely used. helium used because its low viscosity allows it to travel quickly through the long connecting tubes and has a lower risk than air of causing an embolism should the balloon rupture. **Physiological Effects Of IABP** ; 1. Increase in myocardial oxygen supply 2. Increase coronary artery perfusion 3. Decreases myocardial oxygen demand 4. Decreases myocardial work by reducing after load 5. Increases blood pressure 6. Decreases pulmonary artery pressure	Lecture cum discussion	

			Balloon deflation Helium is used to inflate the balloon as it is easily dissolve in blood and prevents the risk of air emboli if the catheter rupture .when a patient is on an intra aortic balloon pump the nurses should expect to see the following waveform .when balloon assisted .the diastolic pressure should always be the maximum blood flow .the balloon assisted systolic pressure should be lower than the patients non assisted systolic pressure due to the reduction in after load. **Balloon inflation** Deflation of the IABP occurs in systolic causing a decrease in aortic end diastolic pressure, ventricular wall tension and increase in stroke volume.		
7	10 min	Enumerate the before insertion of IABP	**Before Insertion Of IABP** ; Aspirate 30 cc to ensure IABP is collapsed DO NOT remove one-way-valve ➢ Remove stylette from inner lumen DO NOT replace styletee ➢ Please stopcock on luer port and flush with 3-5 cc NSS .DO NOT allow air to enter. ➢ Use the blue T handle as a marker for proper positioning usually between the 2nd and 3rd intercostals space ➢ The balloon should be located in the proximal descending	Lecture cum discussion	•

			aorta, just below the origin of the left subclavian artery. ➢ This ideally results in the balloon terminating just above the splanchnic vessel. ➢ If you have power issues check this first ➢ Hook up IABP extension tubing to helium outlet ➢ Attach fiber fiberoptic cable; DO NOT touch the end with your fingers ➢ Press START to auto fill, zero ,and self time the IABP ➢ This is the same concept as opening to air when zeroing regular transducers this must be done within 15 seconds of pressing the VENT button ➢ Attach slave cable to back of IABP ➢ Zeroing pressure when slaving to extension monitor **Key points** ➢ The primary goal of intra-aortic balloon pump(IABP) treatment is to increases myocardial oxygen supply and decreased myocardial oxygen demand ➢ Decreased urine output after the insertion of IABP can occur because of juxta-renal balloon positioning. ➢ Heamolysis from mechanical damage to red blood cells can reduce the haematocrti by up to 5 %		

			➢ Suboptimal timing of inflation and deflation of the balloon produces hemodynamic instability. ➢ An IABP is thrombogenic;always anticoagulation the patient. ➢ Never switch the balloon off while in situ.		
6	30 min	Explain the principals	**Prinicapls Of IABP ;** ❖ Counter pulsation is a term that describes balloon inflation in diastole and deflation in early systole. ❖ Balloon inflation causes volume displacement of blood within the aorta, both proximally and distally. ❖ This leads to a potentially increases in coronary blood flow and potential increases in coronary blood flow and potential improvement in systemic perfusion by augmentation of intrinsic ;windklessel effect ; ❖ Potential energy stored in the aortic root during with the elastic recoil of the aortic root. ❖ **Balloon volume ;** The amount of blood displaced is proportional to the volume of the balloon.	Lecture cum discussion and demonstration	Return demonstration About CPR Role play about first aid management of head injury

			Heart rate ; LV and aortic diastole filling times are inversely proportional to heart rate ,shorter diastolic time produces lesser balloon augmentation per unit time. **Aortic compliance ;** As aortic compliance increase or SVR decreases, the magnitude of diastole augmentation decrease . **Risk Management ;** **Limb Ischaemia ;** ➢ Document hourly pedal pulses ➢ Document hourly radial pulses ➢ Document limb temperature ➢ Document limb colour **Bleeding from the insertion site** ➢ Hourly cardiovascular observations ➢ Keep site exposed whilst maintaining patient dignity ➢ Observe the insertion site anteriorly ➢ Observe posteriorly for bruising to the flanks ➢ Prevent catheter movement		

			Thromboembolism ➢ **Anticoagulation as per hospital policy** ➢ **Check clotting studies as per hospital policy** **Thrombocytopenia ;** ➢ Observe patient for bruising, oozing, orbleeding ➢ Monitor platelet count ➢ Replace where indicate **Balloon catheter rupture and gas loss ;** ➢ Black flow of blood into the tubing ➢ Immediate response required if console alarms gas leak 'low augmentation or blood detect' ➢ Inform medical team immediately **Aortic dissection** ; ❖ Observe patient for the following symptoms ,black pain, abdominal pain cardiovascular instability ❖ Inform medical team immediately **compartment syndrome** ❖ Observe patient for the following symptoms, swelling, pain, loss of sensation or function, ❖ measure and record calf girth		

			❖ inform medical team immediately **Infection** ➢ Hourly observation ➢ Check septic markers daily ➢ Aseptic technique for all intervention ➢ Check and record VIP scores ➢ Use semi occlusive transparent dressings ➢ Consider bowel management ➢ Inform medical team immediately **Renal failure** ➢ Catheterize ➢ Hourly urine output ➢ Check renal function ➢ Inform medical team immediately **Nursing intervention** **Cardiovascular system ;** ➢ Monitor temperature, pulse, systolic, diastolic, blood pressure ➢ Observe and record IABP waveform ➢ Monitor and treat arrhythmias ➢ Maintain therapeutic anticoagulation		

			➢ Monitor radial and pedal pulses hourly **Respiratory System;** ➢ Monitor respiratory rate and pulse oximeter hourly ➢ Provide supplentary oxygen as required ➢ Encourage deep breathing exercise **Renal System ;** ➢ Catheterize and monitor urine output ➢ Monitor renal function daily **Gastrointestinal System ;** ➢ Assist and monitor patient dietary and food intake ➢ Use of nutritional supplements if required ➢ Refer to dietician as needed ➢ Monitor bowels and laxatives as required **Skin** ➢ Educate the patient about need to be elevated no more than 30 degrees and keep the affected leg straight ➢ Observe pressure areas ➢ Use the skin bundle and turn patient every 2-4 hours. ➢ Use a minimum of three members of staff to ensure that balloon is not moved ➢ Ensure that the insertion site is visible whilst maintaining		

			patient dignity ➢ Check IABP entry site hourly and observation for bleeding and haematoma formation ➢ Monitor or plan limb perfusion hourly ➢ CNS ➢ Fully inform patient and family about what is happening ➢ Keep noise levels to a minimum ➢ Cluster care to allow for periods of uninterrupted sleep ➢ Monitor pain score hourly and ensure adequate pain control ➢ IABP CARE ➢ Set the augmentation alarm 10mmHg below the augmented diastolic pressure .the alarm should be continuously and on maximum volume ➢ ECG trigger should still work so long as there is R wave. If moving lead closer to the heart does not make R wave more pronounced .consider semi-auto mode and pacer V/AV trigger . The balloon will then trigger off the V-spike ➢ Inspect the pressure bag for volume and proper inflation. Always use 0.9 % NS .never heparin. Flush should be done 6 hourly ➢ Transducer the aortic arterial line (balloon lumen) via		

			datascope console ➢ Check helium tank level by checking the gauge on the side of the console and replace the tank as needed. ➢ When low helium alarmtriggers,there approximately 48 hours. ➢ While changing helium tank ,leave the console on and running ➢ Never flush power or draw the blood from the IABP arterial line. ➢ Label the IABP tubing at the insertion site as a reference point for catheter migration. ➢ IABP frequency to be maintained per physician order. ➢ IABP timing is 1;2or 1;3 the patient should be receiving systemic anticoagulation. ➢ Wean IABP per provider order as follows place IABP on 1;2 and 1;3 prior to discontinuing to ensure patient tolerance .place 1;1 and turn off anticoagulation before IABP is pulled . ➢ If the IABP is discontinued, clean the pump, bring it out from the room and plug it in.		

			Troubleshooting; ➢ Never turn off IABP until the provider is ready to remove it. ➢ If console fails, use a 60 ml syringe and stopcock to inflate and deflate IABP 5 mints using 40 ml of helium until a new console is available. ➢ Report to a provider if blood is observed (rust colored flecks)in the IABP catheter helium line or if a recurrent gas loss alarm occurs. ➢ Turn off pump immediately if rupture is confirmed and procedure for removal with provider. ➢ If the IABP pressure waveform dampens, check all connections and ensure tubing's if free of kinks and air bundles .the IABP flushed using pigtail on the transducer or power flushed only when pump is on standby. ➢ If patient on IABP has a cardiac arrest.switch the pump to pressure trigger mode and decreases augmentation to 50 % .DO NOT TURNOFF THE PUMP. the balloon will inflated and deflate in synchronous with compressions .		

			PATIENT CARE ➢ Keep the patient in supine position with HOB elevated no more than degrees. Reverse trendelenberg should be used. ➢ Do not flex the leg with IABP catheter .if needed ,apply a knee brace ➢ Log roll patient from side to side. ➢ After IABP catheter is removed, ensure that direct pressure is held over the site, either manually or using catheterclamp, until homeostasis is achieved. ➢ Patient should be flat in bed for 1 hour after IABP is removed,and should remain on bed rest for 4 hours. ➢ Assess the site for hematoma or bleeding and monitor distal pluses of lower extremity 15 mins once, and 30 mints once ,and then 1 hour once after 2 hourly removed . ➢ Notify blood in tubing. ➢ Any vascular changes, diminished pluses lost signals Augemation pressure less than 5 mmHg above systolic pressure ➢ Bleeding or hematoma at insertion site or signs of retroperitoneal bleed. ➢ Drop in hematocrit unexplained by other bleeding sites.		

			➢ Abrupt stop in urinary output. ➢ Any signs of dissecting aorta ➢ Monitor pedal and radial pluses on affected site every 15 mints once and hourly. ➢ Monitor for signs of limb ischemia (color, sensation, temperature, movement, and capillary refill)15 mints once and hourly. ➢ Print the EKG strip from the IABP and mount back of the flow sheet 12 hourly ➢ Auscultate the heart and breath sounds while the IABP is on standby. ➢ Limit the amount of the time the pump is placed on standby. Especially for patients with unstable blood pressure or active ischemia. ➢ NEVER allow the pump to be paused for > 30 minutes. Ensure that the standby advisory tone is on . ➢ Monitor and document systolic, diastolic, MAP and diastolic augmentation pressure from the IABP console hourly. use MAP on IABP to titrate drips.		

7	5 min	point out the complications of IABP	**Complications of IABP patient** ➢ Limb ischemia ➢ Infection ➢ Heparin inducted thrombocytopenia ➢ Neurological complications including paraplegia ➢ Aortic perforation ➢ Aortic dissection ➢ Renal failure and bowel ischemia ➢ Compartment syndrome ➢ Cerebral embolism ➢ Bleeding ➢ Myocardial ischemia	Lecture cum discussion	What are the complications of IABP?
			Conclusion Nurses have a vital role in delivering the initial care of taking care of patient with IABP. Every Nurses spends eight hours of duration in Apollo main hospital and Apollo specialty hospital after their duty hours. and it creates inconvenience and waste of time for all the passengers. Therefore nurses must be trained to tackle the situation with the knowledge regarding care of patient with IABP , he or she will be able to care of patient with IABP an important role in saving the life of patient.		

APPENDIX XV

DATA CODE SHEET

DEMOGRAPHIC VARIABLES PROFORMA OF NURSES

SAMPLE NO:

1. Age in years (AGE)

1.1 21 to 25

1.2 26 to 30

1.3 31 to 35

1.4 Above 35

2. Gender (GED)

2.1 Male

2.2 Female

3. Educational status (EDU)

3.1 GNM

3.2 B.Sc nursing

3.3 Post Basic B.Sc Nursing

3.4 M.Sc Nursing

4. Years of experience in Intensive care unit (YEICU)

4.1 $\leq$ 2 years

4.2 3 to 5 years

4.3 6 to 10 years

4.4 Above 10 years

5. Previous experience of care of patient with IABP (PECPI)

5.1 Yes

5.2 No

APPENDIX XVI

MASTER CODE SHEET

						Knowledge level		Practice level		Acceptability
S. NO	AGE	GEN	ED	YRICU	PRE EXP	PRT	POT - I	PRT	POT - I	
1	1	1	2	1	2	19	21	14	24	40
2	1	2	2	1	1	17	20	16	26	40
3	1	2	2	2	2	17	19	14	26	30
4	1	2	2	1	1	17	23	12	32	40
5	1	2	2	1	2	16	20	16	26	38
6	1	2	1	4	1	16	20	18	28	33
7	1	2	1	3	1	19	24	10	28	40
8	1	1	2	2	1	19	24	12	28	38
9	1	1	2	1	1	20	20	14	26	38
10	1	2	2	1	1	19	23	16	26	35
11	1	1	2	2	1	15	25	12	26	38
12	1	1	2	2	1	17	20	12	28	40
13	1	2	2	2	1	13	27	10	28	40
14	1	2	2	2	1	16	25	14	26	40
15	1	2	2	1	1	14	22	14	26	37
16	1	2	2	1	1	15	26	12	28	35
17	1	2	2	1	2	13	28	18	34	37
18	1	2	2	1	1	20	20	16	26	40
19	1	2	2	2	1	16	21	18	26	30
20	1	2	2	1	1	17	20	14	24	39
21	1	2	3	3	1	14	24	16	28	30
22	1	2	1	2	1	20	22	12	26	40
23	1	2	1	2	2	18	24	18	26	30
24	1	2	2	1	2	16	20	16	20	38
25	1	2	1	1	1	14	26	14	26	39
26	1	1	1	2	1	20	24	30	26	38
27	1	1	2	1	1	15	19	18	26	33
28	1	1	2	2	2	19	20	14	28	34
29	3	2	4	1	1	17	25	16	28	37
30	3	2	1	1	1	15	19	12	26	40
31	3	1	2	1	2	13	22	20	28	38
32	1	2	2	1	1	14	24	22	26	40
33	3	2	2	2	2	16	20	20	36	38
34	1	2	2	1	1	13	27	24	30	26
35	1	2	2	1	2	12	24	20	24	26
36	1	2	1	4	1	16	28	22	36	40

37	3	2	1	3	1	14	22	24	28	30
38	2	1	2	2	1	18	25	20	28	38
39	2	1	2	1	1	14	23	20	32	36
40	1	2	2	1	1	15	20	20	26	40
41	1	1	2	2	1	17	21	22	34	38
42	1	1	2	2	1	19	22	24	30	38
43	1	2	2	2	1	15	24	20	29	40
44	1	2	2	2	1	17	26	14	38	35
45	1	2	2	1	1	18	27	20	29	30
46	2	2	2	1	1	14	20	24	30	33
47	1	2	2	1	2	18	19	20	22	36
48	1	2	2	1	1	17	21	16	21	39
49	1	2	2	2	1	16	22	18	24	40
50	1	2	2	1	1	15	26	20	29	36
51	1	2	3	3	1	18	24	16	32	37
52	1	2	1	2	1	19	26	14	28	40
53	2	2	1	2	2	17	25	16	24	30
54	1	2	2	1	2	18	28	18	34	40
55	1	2	1	1	1	15	20	20	30	32
56	1	1	1	2	1	20	22	14	18	38
57	1	1	2	1	1	17	24	20	34	36
58	2	1	2	2	2	18	21	16	28	36
59	2	2	4	1	1	15	26	16	26	40
60	2	2	1	1	1	18	27	17	34	37

APPENDIX XVII

PHOTOGRAPHS DURING CARE OF PATIENT WITH IABP